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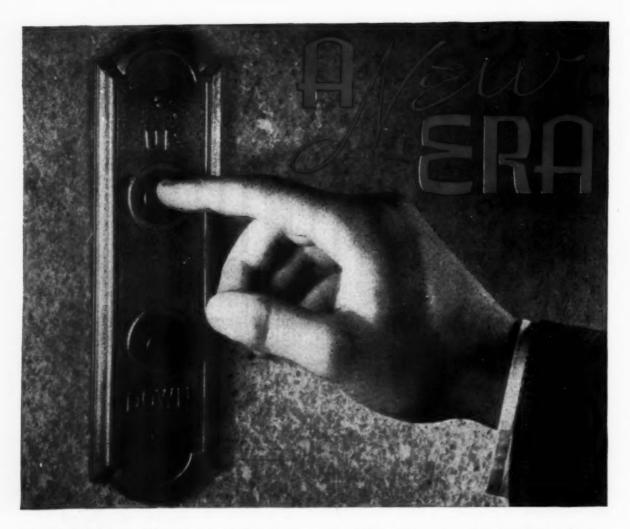
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SOAP

Volume XXI Number 12 December, 1945

SANITARY CHEMICALS

CONTENTS

| Editorials | 35 |
|--|-----|
| Paint and Wallpaper Cleaners | 37 |
| Scap-Containing Synthetic Detergent | 4 |
| Ask End of Fat Quotas | 44 |
| Technical Briefs | 46 |
| Soap Perfuming | 67 |
| N.A.I.D.M. Meets in New York | 134 |
| By Lowell B. Kilgore | 138 |
| Residual Toxicity of DDT | 141 |
| Roach Rearing and Testing By L. J. Bottimer and Frank O. Hazard | 151 |
| DDT Toxicity By Dr. Horace S. Telford | 161 |
| Effect of Fly Food on Resistance to Insecticides | 165 |
| Bids and Awards | 57 |
| New Trademarks | 59 |
| Raw Material Markets | 63 |
| Production Clinic | 71 |
| Products and Processes | 75 |
| New Patents | 77 |
| Sanitary Products Section | 87 |
| Classified Advertising | 195 |
| Advertisers' Index | 199 |

Published Monthly By
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254 West 31st, New York, N. Y.



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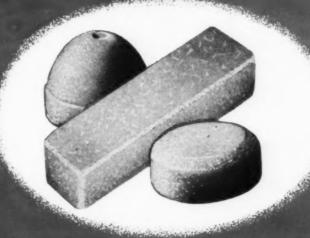
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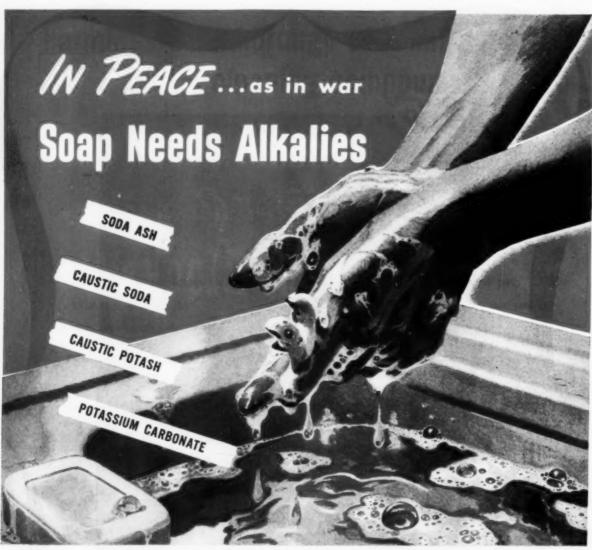


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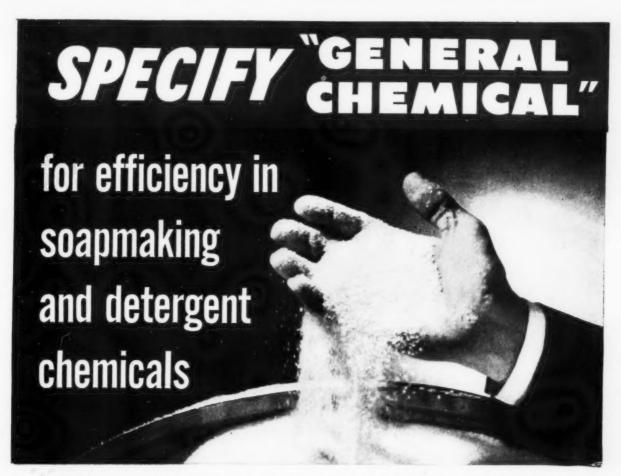
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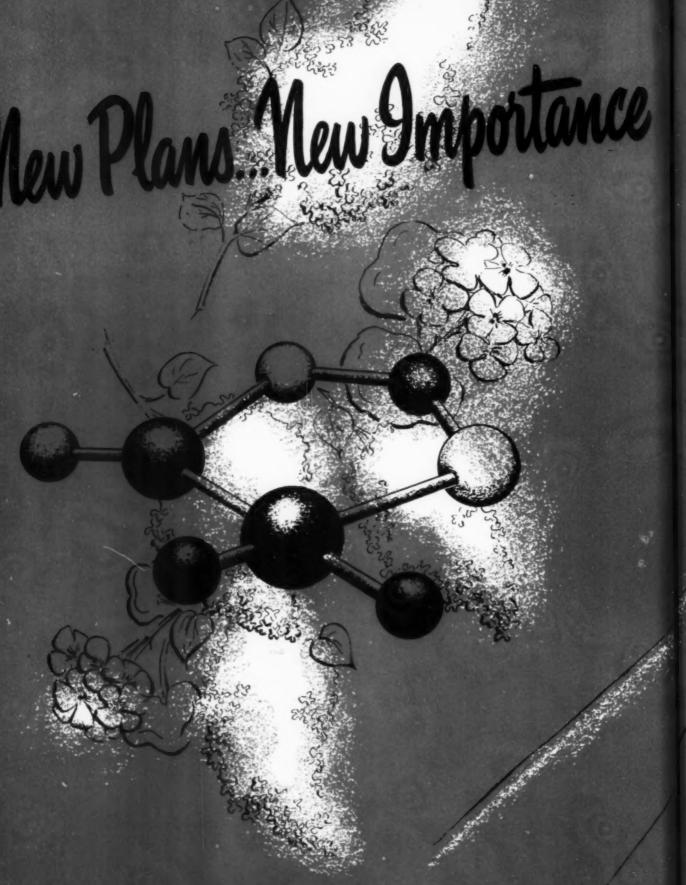
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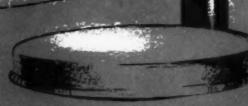
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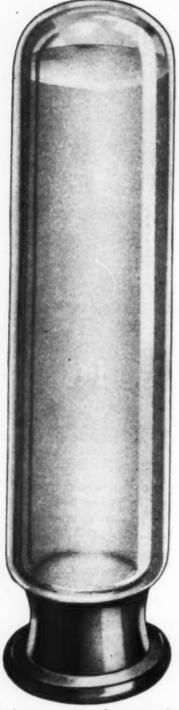
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December, 1945

Say you saw it in SOAP!

21

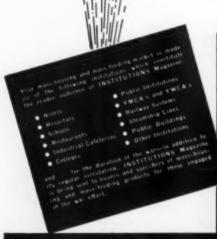
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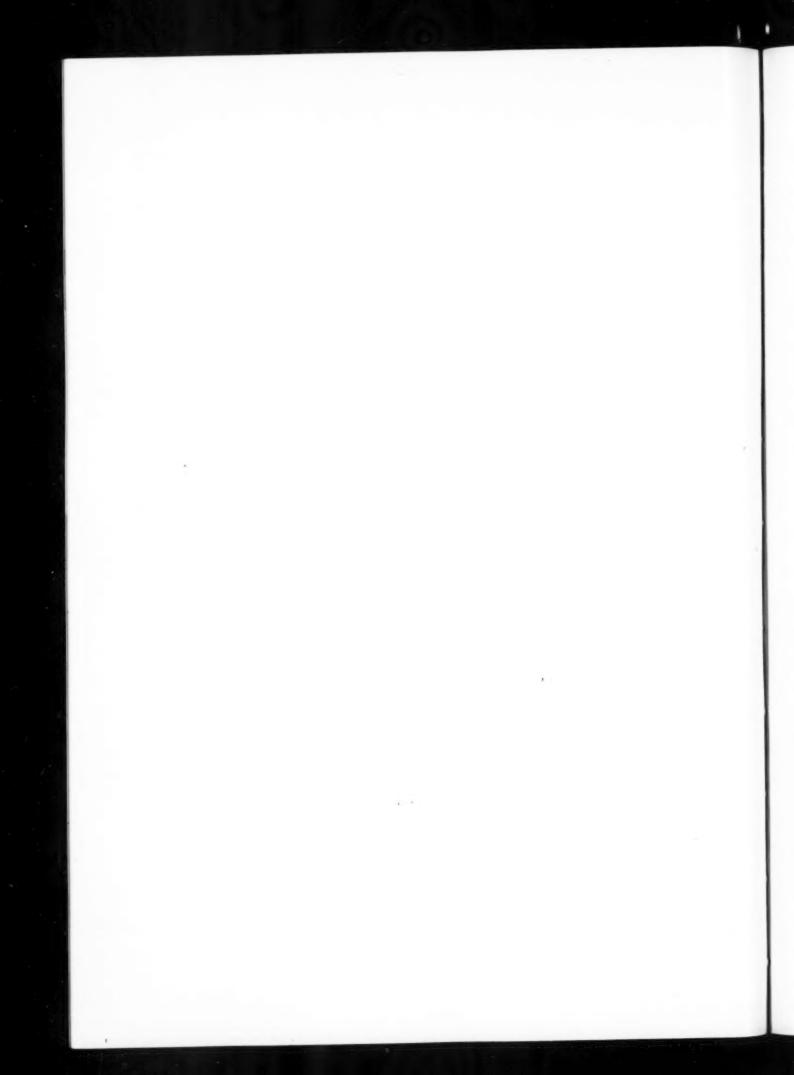




Jaith ... faith in the future ... faith in men of good will ... eternally, these are the essence of the Christmas Season. As we pause to express Greetings to our friends in all those industries we serve, we renew our pledge of unstinted cooperation for the year ahead.

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PHILLIPS BROOKS

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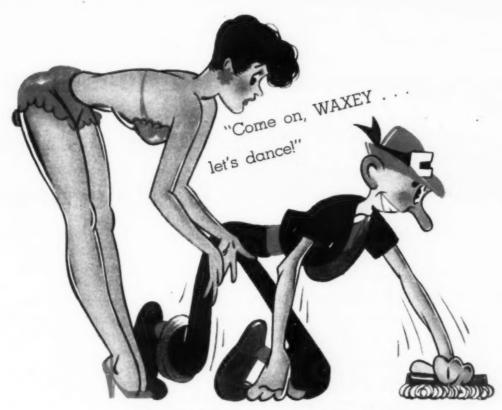
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HOSPITAL MANAGEMENT can take your story to all the people who influence purchases. Our balanced editorial program of "how to do it" articles and the outstanding news service of the field, produces readership which takes hospital people right to your story.

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Hundreds of advertisers have found this the ideal medium for increasing their sales in one of the greatest of markets. Ask for our circular giving the complete story about HOSPITAL MANAGEMENT, or better yet, have one of our representatives give you that story.





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Buckeye Liquid Scrubbing Soap is for use on

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It is imperative that all floor surfaces be properly prepared for wax treatment by use of the above scrubbing soaps where their specific qualifications are required. Send for folder which gives complete information.



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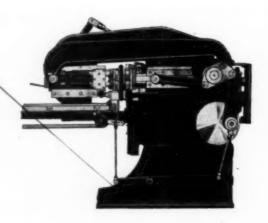


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You'll have clockwork perfection in your soap-pressing when you ristall one of the new Jones Toggle Operated Soap Presses. Thoroughly modern, highly efficient, this press gives long uninterrupted runs, without frequent cleaning of dies. Poing its job right the first time, the Jones press relieves your mind of re-milling, re-pressing and rejection problems. Operation is noiseless and vibrationless.

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AS THE SEES IT

NHROUGHOUT the war period, complaints from smaller soap manufacturers that they were being treated unfairly by WPB, WFA and OPA were quite numerous. The tenor of these complaints was usually that the larger soapers dominated the actions of the various government control and advisory agencies, that smaller soapers had little voice in Washington and rarely knew what was being contemplated until after it had happened, and that the larger companies invariably knew in advance what was going to happen and acted accordingly in behalf of their own interests. As examples, the makeup of the Soap and Glycerine Advisory Committee, the reputed leak when coconut oil was frozen back in 1942, the supposed advance tip when foots and fatty acids from foots were boosted to 200 per cent of quota and the market was cleaned of stocks before the amendment was issued from Washington, and other instances were pointed out. From surrounding circumstances, one might judge that some of these complaints were at least not wholly unfounded as Washington tried to convey.

More recently from two smaller soapers have come a reiteration of these general charges in the form of letters broadcast to most small firms in the industry and to various and sundry officials in Washington. These letters call for the end of oil and fat rationing, and urge the smaller soapers of the country to band together against further discriminatory treatment in a group where they will have a voice and a vote which they do not have today in matters vitally affecting them. That these complaints have struck a responsive note among other soapers, we know.

Throughout the war period there had

been too much secrecy in soap and glycerine matters in Washington as well as elsewhere,—unnecessary "gum-shoe" operations which aroused suspicion.. Too many things happened which smacked of "star chamber" proceedings and which gave the impression that there was an inside track for a select few. Founded or unfounded, the charges resulting from some obviously shortsighted war-time policies deserve prompt and frank answer.

ENTIMENT in the soap industry appears to be rising against the policy of WFA in continuing to harbor stockpiles of coconut and other soap fats while the industry struggles along in the face of short supplies. Sharp issue is taken with WFA that there is further need for stockpiles or that any government emergency continues to exist in view of deep cut-backs in all government soap purchases. If there is an emergency, it is pointed out, that emergency is in the pressing need for larger fat supplies by soapers to enable them to expand their output of scarce household soap products.

Continuation of the present soap shortage is blamed directly on WFA. To relieve the situation, an immediate increase in quotas especially for household soaps and the complete release of all stockpiled oils is called for now when the need is acute, not at some later date when the emergency has passed. The end of all fat and oil controls as requested by some smaller soap units is not considered advisable at the moment in order to protect the interests of the very companies which make the request. But the emergency government need for large stockpiles of soap oils is past. They should be made available to soapers now!

AGE and hour controversies, not to mention innumerable strikes, overshadow all other problems on the American industrial stage at the moment. The heated intensity of these controversies bespeaks their seriousness to both labor and industry. Both are gambling for high stakes, and unlike most gambling games, both sides can simultaneously find themselves in the losing column. In short, the very nature of the controversy could without too much stretch of the imagination "kill the goose that lays the golden eggs."

With our old-fashioned bringing up, there are many things in these labor-industry disputes which are clean over our head. When we hear the boys in Washington glibly espouse the theory that wages can be boosted twenty or thirty per cent without raising costs or prices, we marvel at the wonders of modern economics. When we have had the temerity to inquire how this can be done, we have been told that increased production is the answer. But when everybody has everything they need and demand begins to slow up, what then? Where does the money come from for the bigger payrolls? Does the golden-egg goose get it in the neck then,-or what? But as mentioned before, probably the boys in Washington know the answer and we are just dumb and should go back to college and repeat Economics A.

In addition to being dumb, we are also suspicious. The present labor-management theories of which the government boys have an endless variety seem to have a slight odor of fromage de brie. They remind us for all the world of the determined attempts to spend our way back to prosperity in the late thirties and before the war came along and obviated the embarrassment of explanations. We suspect that some government economists may, while they talk about the horrors of inflation, be deliberately encouraging this very thing. Maybe it is the first step toward reducing the old national debt which now rises tower-high leering down at us. Maybe we stand on the threshold of a new era of "baloney dollars" as once so aptly termed by the late Al Smith. But then again, maybe we are unduly suspicious of the Washington theory boys. Maybe they do know how to raise wages thirty per cent, keep costs and prices unchanged, and avoid squeezing the gizzard right out of the old golden goose. Maybe they do, but we don't!



OCONUT oil is neither being produced nor shipped from the Philippines in the quantities anticipated some months ago. Reports indicate that there is little inclination on the part of the Filipinos to harvest and process copra under present conditions in the Islands. When original estimates of the time and size of shipments to the United States were made, apparently only the physical availability of copra and shipping facilities were considered. Now, it would appear, inflation in the Islands and the inability of the Filipinos to buy goods with any receipts from copra harvesting have stymied shipping plans. The acute scarcity of all goods in the Philippines and the heights to which prices have become inflated render futile any attempts to encourage copra production on a money basis. The Filipinos want goods, not money.



HAT is a soap "converter"? Usually, he is a manufacturer to whom soap is a raw material, who purchases base soap, uses it in manufacture of a finished product, possibly a hand soap, shampoo, detergent, or something else. As manufacturer of the finished product, the converter has been subject to the usual quota restrictions. However, the actual soap manufacturer selling to the converter has been able to take on such business and count it ex-quota. But it seems that some hocus-pocus in the matter of ex-quota sales to converters, real and imaginary, has lately come to light. So now, with the end of quota restrictions in the offing, we have it on good authority that the nefarious practice is going to be stopped.

PAINT and WALLPAPER CLEANERS



EOPLE never cease to be amazed at what a fresh coat of paint can do to brighten the appearance of a room. Probably calling for less attention than

most other types of surface finishes, painted walls nontheless require a certain amount of regular cleansing care to help maintain the original freshness and color.

Aside from esthetic considerations, cleaning painted and varnished walls regularly is also good economy, because surfaces that are freshened regularly do not require such frequent redoing. Regular cleaning with a suitable, efficient preparation, plus the use of the new types of paints based on tough, durable synthetic resins will undoubtedly result in considerable reduction in renovating costs. Then, too, one cannot overlook the fact that dirtdulled walls have the effect of decreasing the efficiency of both natural and artificial lighting. Light-absorbing walls not only cause eye-strain but may also result in higher lighting bills.

Unlike floors, dust and dirt accumulation on walls is a rather gradual process. Often the dulling of the paint finish goes unremedied until the condition becomes distressingly obvious. In due time, a painted wall will take on a film of greasy dirty; the amount of dirt fixation and the distribution pattern depending upon a number of factors. Heat currents have an important bearing on the way dust, soot and such will be distributed on walls-a fact clearly evident in the vertical patterns formed over radiators. Projections of any kind, including nail heads, moldings, pictures and other wall ornaments, also contribute to uneven dirt distribution and to dust accumulation.

Milton A. Lesser

Especially important is the type of finish on the walls. Rough finishes created by the use of special paints or by mechanical stippling, troweling or rubber pattern rolls, are more apt to collect dust and dirt than are the glossy enamel or varnish coatings. The nature of the finish will also have an important bearing on the type of cleansing agent that may be applied to the walls. Thus, flat finishes permit the use of a variety of cleaners including soaps and alkalies, and their combinations, with or without mild abrasives or other additions. Glossy surfaces, however, require rather gentle treatment if the high lustre is to be retained. Mild soaps and similar preparations are generally recommended for cleaning the glossy paints so often used on doors, door and window frames and other wall trim. Abrasive-containing cleaners as well as those containing high proportions of detergent alkalies are generally contraindicated as too harsh for these glossy finishes. Similar restrictions probably hold for coatings made with the newer "water" or emulsion paints. These dry tack-free within a matter of hours, but a week or ten days is usually required for the film to harden sufficiently to permit washing or cleaning.

Much effort and material can be saved if, before applying a cleaner, the walls are dusted with clean cloths or, if possible, a vaccum applied to the vertical surfaces. Considerable loose dirt can be removed by such preliminary measures with a resultant economy in both cleanser and elbow grease.

With these observations in mind, it is permissible to consider paint cleaners themselves. Soaps, of course, loom large among materials used for cleaning painted walls and prolonging the life of the protective and decorative film.(1) Indeed, a 2 per cent solution of a neutral, hard white soap has been employed in attempts to standardize tests for determining the cleaning characteristics of paints.(2)

Paint, enamel and varnish may be washed safely by using a good suds of neutral soap; the soap being dissolved in warm water and applied to the wall by means of a sponge. Strong soaps are best avoided, especially for glossy surfaces, since they may destroy the luster. (3) When soaps are used, thorough rinsing is necessary to remove any residual film, since this, in itself, may act as an adhesive for dust and dirt. Although many people use hard white soaps, the general consensus of opinion appears to favor the use of potash vegetable soap. Using this idea, a simple soap paste for cleaning painted walls has been described (4) as con-

| Potash | linseed oil soap30.0% | 2 |
|--------|-----------------------|----|
| Potash | coconut oil soap 5.0% | 2 |
| Water | 65.0% | į. |

If desired, a simple soap base paste may be modified by the inclusion of a solvent to help remove grease and a material to counteract any obvious soapy or solvent odor. A semi-solid, white, permanent product, said (5) to be very effective as a cleaner for painted surfaces may be made along the following lines:

| Soap chips | | | | | | | | | | | 20.0 |
|------------------|----|---|--|---|---|--|--|---|---|--|------|
| Mineral spirits | | | | | | | | | , | | 10.0 |
| Water | ٠, | * | | | | | | y | | | 69.3 |
| Oil of sassafras | 1 | × | | , | , | | | , | | | 0.7 |

Allow the soap to soak in the water

and then bring into solution with heat. With vigorous agitation incorporate the mineral spirits and then add the sassafras oil.

Other paste products for cleaning painted surfaces combine a mild abrasive with the soap base in order to facilitate the removal of heavier dirt accumulations. Old timers used to scour dirty walls with a mixture of soft soap and fuller's earth plus lukewarm water. (6) Representing a slight modification, a composition patented some years ago for cleaning and polishing painted surfaces was described (7) as containing:

| Phosphate | | | | | .1 | | | - | _ | | | A | | - | | | | | | | | Parts |
|-----------|---|---|---|---|----|---|---|---|---|---|---|---|---|---|--|---|---|---|---|---|--|-------|
| | | | | | | | | | | | | | | | | | | | | | | |
| Soap | × | × | × | × | * | * | × | * | × | * | * | | × | | | * | × | × | ĸ | | | 4.0 |
| Alcohol . | | | | | 8 | | | | | * | | | | | | | | | | × | | 8.0 |

More modern, the following paint cleaner is said (3) to have been used successfully in many instances:

| | | | | | | | Parts |
|---------|--------|-------|------|-----|-----|-----|----------|
| Tripoli | | | | | * * | × × | 56.0 |
| Neutral | | | | | | | |
| Water | | | | * * | | | 50.0 |
| Denatur | ed ale | cohol | | | | | 13.5 |

Other soap-based pastes take advantage of the added cleansing action imparted by various alkali builders; a very common procedure in the production of various detergent products. Years ago, a mixture of soap, borax and water was recommended (6) as suitable for cleaning painted walls. Much more recently, because of its good rinsing qualities, potassium oleate has been mentioned (4) as being especially suitable for use in paint cleaners. Combination with tetrasodium pyrophosphate or similar compound results in improved detergent action plus a decreased tendency on the part of the soap base to form insoluble precipitates in hard water areas. On occasion, combinations of alkaline salts are suggested to give more rounded effects. Illustrative is a patented (8) preparation for cleaning paint made from borax, sodium carbonate, sodium bicarbonate, calcium oxide, soap, paraffin oil and water.

Representing a departure from the usual type of soap-based product is a frequently recommended (5,9,10) paint cleaner employing diglycol stearate as the emulsifier for both the solvent ingredient and the dirt. With trisodium phosphate included to provide a stronger cleansing action, this product quickly removes dirt from paint, leaving the surface with a bright, clean lustrous finish—this last largely attributable to the stearate. Easy to make, the cleaner consists of:

| | | Parts |
|-----------------------|------|----------|
| Kerosene | | 40.0 |
| Diglycol stearate | | |
| Trisodium phosphate . | | 5.0 |
| Water | | |

The diglycol stearate and kerosene are heated together on a water bath until solution occurs. Separately, the trisodium phosphate and water are heated to about 105°F. The aqueous solution is then added to the kerosene solution while stirring at high speed. Stirring should be continued until the mixture is of even consistency. Mixing may then be continued at a slow rate until the temperature falls to about 85°F.

On occasion attempts have been made to create a more rounded paste cleaner by combining a mechanical cleansing action, through the use of fine abrasives, with the detergent effects provided by both soap and alkali. Paint cleaner of this type may be made from: (5)

| | Part: |
|------------------------|-------|
| Powdered dry soap | 10.0 |
| Trisodium phosphate | 20.0 |
| Soda ash | 40.0 |
| Air-blow silica | 5.0 |
| Finely powdered kaolin | 5.0 |
| Water | 20.0 |

After thorough mixing, the paste should be well ground and preferably milled. If desired 0.15 part of citronella may be included to impart a pleasant odor, and a small amount of color may be added.

URING the last few years, synthetic detergents have come in for attention and such materials offer much promise in the formulation of paint and varnish cleaners. (11) Sulfonated oils, which fall into this category, were advocated as paint cleaners many years ago. Witness to this is a patent (12) granted in 1935 for removing dirt and grease from lacquered surfaces. In this case there was employed a mixture of kerosene, sulfonated castor oil, sulfonated coconut oil neutralized with rosin soap, and a small amount of alcohol.

Of decided interest in this connection is a series of quite recently reported tests (13) on the relative efficiency of solutions of detergents in sea water. The point that makes these tests particularly noteworthy is the fact that removal of soil from painted surfaces was employed as a basis of comparison. To the surprise of the investigators a combination of synthetic detergent and soap proved superior to all the other materials tested, including synthetic detergents used alone and in combination with alkalies.

Liquid preparations for cleaning painted walls may range in composition all the way from simple aqueous solutions of trisodium phosphate to quite complex combinations containing a number of ingredients. At the one extreme, we find liquid cleaners containing from one to three per cent of trisodium phosphate. Stronger concentrations of this versatile alkali must be avoided for, aside from their dulling effect, they may actually serve as paint removers.

At the other extreme one might cite the following solution given by Small.(4) To be used undiluted, this cleaner consists of:

| Potassium | | C | • |): | c | 0 | n | U | ıt | | 0 | ì | 1 | S | 0. | a | p | | × | | × | 0.4% |
|------------|---|---|---|----|---|---|---|---|----|---|---|---|---|---|----|---|---|--|---|----|---|-------|
| Potassium | ì | 0 | 1 | e | a | ŧ | e | | s | 0 | a | p | ŀ | | | | | | × | 00 | | 0.3% |
| Soda ash . | | | | | | | | | | | | | | | | | | | | | | 0.2% |
| Borax | | | | | | | | | | | | | | | | | | | | | | |
| Ammonia | | | | | | | | | | | | | | | | | | | | | | 1.7% |
| Water | | | | | | | | | | | | | | | | | | | | | | 94.4% |

Emulsion type liquid cleansers, based chiefly on the action of kerosene, are also available. A product of this sort may be made by emulsifying kerosene with water by means of a triethanolamine soap. (11) Where it is desired to incorporate a material which aids dispersion and promotes emulsification, a formula such as the following should serve:

| Sodium | tallow | soap | | | | | | | | | | 6.0% |
|----------|--------|-------|----|-----|----|-----|---|---|---|---|---|-------|
| Kerosen | e | | | * * | | | | | | | * | 17.0% |
| Colloida | l clay | (bent | on | ite | (! | | | | * | * | | 7.0% |
| Water | | | | | | . * | * | * | | | | 70.0% |

Paint and varnish cleaners in powder form are among the most popular, if not the most popular, of these products. Undoubtedly the commonest and most generally used basic material is trisodium phosphate. Used alone and packaged in suitable containers, this salt is generally added to hot water in the proportions of about one tablespoonful of the alkali to one gallon of water. Applied to painted

wood work, allowed to act for a minute or so, the solution is sponged off and the surface wiped dry with clean rags. For painted walls, it is sometimes suggested that a little household ammonia be added to the above solution, especially for cleaning grease-grimed kitchen walls.

Of course this alkali is often used in conjunction with other detergent materials to make efficient paint cleaners. One such mixture which provides quick cleansing action, but which is not particularly suitable for glossy finishes, has been found (4,11) to consist of:

| Trisodium | phosphate | | | * | | | | 32.0% |
|------------|-------------|-----|---|---|---|---|---|-------|
| Soda ash : | | | | | | | * | 60.0% |
| Sodium con | rn oil soap | . 7 | * | | * | × | × | 8.0% |

Used in the proportions of one tablespoonful per gallon of water, this product may be made with a small quantity of pine oil as an odorizer.

Very often, mixtures of this kind are formulated as more or less general purpose cleaners, with painted wall and woodwork applications listed as one of several uses. A product of this type may be made from: (14)

| | | | | | | | | | | P | arts |
|---------------------|---|---|---|---|--|--|----|---|---|---|------|
| Trisodium phosphate | | | * | × | | | * | * | | | 100 |
| Soda ash | | | | | | | × | | | * | 50 |
| Sodium bicarbonate | | | | | | | × | * | , | | 50 |
| Ammonium chloride | * | , | | * | | | 10 | | | | 10 |

For cleaning painted woodwork, one tablespoonful of the above is used per pail of warm water.

Somewhat along the same lines is a product described in a foreign patent. (15) According to the claims and specifications, a compound for cleaning clothes, paints, hands, floors and other materials contains sodium metasilicate, sodium carbonate and trisodium phosphate.

URING recent months, one of the large soap companies has been energetically advertising (including direct mail sampling) a powdered product described as "the perfect cleaner for all painted and varnished surfaces." Heavily stressed is the claim that the use of this product eliminates the need for rinsing and wiping, thereby considerably lessening the amount of work required. Examination of the patents (16) upon which this product is based yielded some rather interesting information. According to

these patents such a product is based essentially on the use of bone glue together with borax, sodium carbonate or trisodium phosphate; a preferred compound consisting of:

| Glue | | | 36% |
|-----------|----------|-----------|---------|
| Anhydrous | sodium | carbonate | 32% |
| Trisodium | phosphat | e | 32% |

Noteworthy is the claim that the presence of glue in the diluted aqueous solution not only aids as a detergent and as a means of forming a protective film on drying, but also serves to prevent too harsh action on the part of the alkalies.

Rather interesting is a paint cleaner that looks much like flour. Said (11) to contain about 70 parts of cornstarch mixed with about 14 parts of trisodium phosphate and 7 parts of soda ash, the powder is slowly stirred into water and made into a thin paste which is applied to the wall to be cleaned and removed while still wet. The starch is presumed to work by adsorbing the dirt released by the alkaline detergents. However, the proportion of alkalies is considered to be quite high.

Mention should be made of another type of composition, recommended for cleaning paints, varnishes, enamels and the like, because it is distinctly different from the usual run of such products. According to the patent claims, (17) chloro compounds of hydrocarbons are the essential ingredients of such materials. A typical example of such a product is as follows:

| | | | | Part. |
|--------------|--------|----------|-----|-------|
| Dichloromet | hane | | | 570 |
| Ethylene ch | loride | B | | 350 |
| Alcohol | | | | 40 |
| Pulverized v | white | naphthal | ene | 100 |
| Paraffin | | | | . 80 |
| Resin | | | | |
| Rubber | | | | 10 |
| Acetophenol | | | | |

orative wall materials returning to popularity, there is naturally an increased demand for products to clean these surfaces, remove spots and finger marks and generally maintain their colorful appearance. Of course there are certain types of wall covering, like patterned oilcloth for use in kitchens and bathrooms, which are amenable to the milder, soap type of paint cleaner.

In the main, however, wallpaper presents the problem of cleaning a surface without being able to take advantage of water and water-soluble detergents.

Cleaning wallpaper therefore depends largely upon materials with an adsorptive or eraser-like action. In the old days, and to some extent even today, it was a quite general procedure to rub down wallpaper with moderately stale bread, usually rye bread. Rubbing in one direction with even strokes, the discolored surface of the bread was sliced away from time to time so as to present a fresh cleaning surface. Modifications of this idea were also employed. For example, soft flat sponges were sprinkled with clean, dry wheat bran and the wall rubbed gently and carefully with this mild abrasive-dusting combination. (18) A variation of this idea was to sew wheat bran into cloth bags and use these to clean wallpaper. Of course "artgum" type erasers have often been used to freshen or remove amenable spots from wallpaper.

Most present day wallpaper cleaners are doughy or putty-like masses which are kneaded into balls before being rubbed over the soiled surface. As work progresses, the ball is kneaded or reworked to present a fresh, dirt-adsorbing face. Rye, wheat or other flour forms the base of most of these wallpaper cleaners. The flour is made up into a dough with water or water containing 25 to 35 per cent of common salt. (19) A preservative of some sort is usually added, like sodium salicylate or sodium benzoate. A small proportion of a solvent, like kerosene or naphtha is sometimes worked into the mass, and often color and perfume are added. Products of this type are generally packed in air-tight, widemouth cans or other containers.

Many variations in formulation of such products have been described in both technical and patent sources. From the latter is a quite simple product made with flour, salt, sodium carbonate and water. Noteworthy is the claim (20) that the resulting doughy mass can be used not only for cleaning wallpaper, but also ceilings, woodwork and paint.

One rather standard procedure for making a wallpaper cleaner has been given (21) as follows: To a saturated solution of salt, add starch to the extent of 30 to 40 per cent, with the aid of heat. Add a small amount of benzene and mix into a homogenous plastic mass. A somewhat more elaborate product, one listed in several sources, (5,9,10) may be made from:

| Water | 1 gal. |
|-------------------|--------------|
| Common salt | 5 lb. |
| Aluminum sulfate | 1/4 lb. |
| Kerosene | 41/2 fl. oz. |
| Wheat flour | 9¾ 1b. |
| Perfume and color | sufficient |

Using a vessel of 3 to 4 gallon capacity, dissolve the salts in the water and heat, with stirring, to 180°F. Remove from the heat source and add the kerosene plus the desired perfume and stir thoroughly and continuously until the temperature falls to 175°F. Now add the flour slowly, preferably from a sifter, while stirring at a fairly rapid rate to prevent lumping. Differences in grade may require minor variations in the proportions of flour used or in the water content. Color, when desired, may be added to the water before heating.

Slightly different is a wallpaper cleaner made from: (5)

| | | | | | | | | | | | | | | | Parts |
|--------|--------|---|--|---|---|---|--|--|---|---|---|---|---|--|-------|
| Wheat | starch | | | | | | | | | | | | | | |
| Water | | | | | | * | | | × | | | * | | | 500 |
| Copper | sulfat | e | | | | | | | | * | | , | 8 | | 80 |
| Sodium | | | | | | | | | | | | | | | |
| Alum | | | | * | * | | | | * | | × | * | * | | 10 |

Heat the wheat starch in the water to form a paste. Dissolve the salts in sufficient water to form a concentrated solution and work into the paste.

Quite similar to the above is a product patented (22) abroad for cleaning walls, paint and such. Based on corn flour plus about 10 per cent of copper sulfate and a minor proportion of alum, the mixture is added to boiling water prior to use.

Other foreign patents describe other modifications for making these cleaners. One series of patents (23,24) describing products resembling soft rubber, useful for cleaning wallpaper and painted surfaces, calls into use a plastic composition made by dissolving an alkali metasilicate and mixing coarse rye flour or bran with it. A small amount of turpentine is added

to prevent the mass from becoming brittle or friable.

Occasionally powdered products are provided; the mixture being pasted with water prior to use to form a mass of the desired consistency and workability. One such wallpaper cleaner may be made from: (5)

| | | | | | | | | | | | | | | | | | | | | | Puru |
|--------|---|---|---|---|---|---|---|--|--|--|---|---|---|---|--|---|---|---|---|---|------|
| Water | | | | * | | | | | | | | , | , | | | | | | | | 20.0 |
| Wheat | 1 | A | 0 | u | ı | * | × | | | | × | | | | | | | * | | | 65.0 |
| Yeast | | | | | | | | | | | | | | | | | | | | | |
| Alum | | | | | | | | | | | | | | × | | | | × | × | * | 5.0 |
| Borax | | | | | | | | | | | | | | | | | | | | | |
| Clay . | | | * | | | | | | | | | | | | | ٠ | × | * | | | 2.0 |
| Ultram | | | | | | | | | | | | | | | | | | | | | |
| Perfun | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | 9 |

The first three ingredients are made into a dough and baked. The resulting product is thoroughly dried, ground and mixed intimately with the other components.

Another powdered product, described in the same source, consists of:
Whiting 10 lb.
Calcined magnesia 2 lb.
Fuller's earth 2 lb.
Pumice powder 12 oz.
Citronella oil 4 oz.

Admitting that paint, varnish and wallpaper cleaners are specialized products, one cannot overlook the fact that this is an age of specialization. A demand for such products does exist and the market is being explored by those aware of this fact. In the foregoing an attempt has been made to indicate the type of products actually used or suggested for use, but it should be evident that many variations and further improvements are possible.

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Tall Oil Components

The fatty and resin-acid components of tall oil are separated by treating a solution of the tall oil in a ketone with ammonia at 40-45°C. for 1-3 hours. The resin acids are precipitated and may be recovered by heating the precipitate at 100-300°C., during which ammonia, acetone, and mesityl oxide are evolved. Evaporation of the filtrate gives the ammonium salts of the fatty acids, which may be used as such or decomposed by acidification or by heating at 100-250°C. Acetone or similar ketones may be used. E. Ott, to Hercules Powder Co. U. S. Patent No. 2,379,986.

Rotproofing Fabric

Cotton and woolen fabrics were dipped for 2-5 minutes in a 0.5 per cent aqueous solution of dimethylglyoxime at 90-100° C., and then immersed in 5 per cent copper acetate at room temperature for 5 minutes. The amount of fixed copper was varied by altering the strength of the copper solution. This treatment was more effective than that with copper naphthenate for rotproofing the material. A. C. Neish, G. A. Ledingham, and A. G. Mackey. Cons. J. Research 23F, 198-201 (1945).

SOAP-CONTAINING SYNTHETIC DETERGENT



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HE possibility of utilizing synthetic non-soap detergents as a replacement for hydrated coconut oil soda soaps for use in hard water and sea water was

probably first explored in 1938 by T. A. Werkinthin and associates at the Standards and Tests Section of the Bureau of Ships, Navy Department. It was reported, that the work was undoubtedly spurred by the realization that an eventual shortage of high lauric acid oils would develop with the initiation of hostilities in the Pacific.

The shortage did develop. In March 1942 the Navy Department received bids on only one quarter of the quantity of coconut oil salt water soap that was then required. Fortunately, however, out of the work of Ruckerman, Hughes, and Clarke, of the Naval Engineering Experimental Station, on the cleaning efficiencies of synthetic detergents, there had been developed sufficient data for the formulation of an all-purpose bar detergent which embodied synthetic detergents, as well as for the delineation of a specification, for the production and acceptance of such a material.

The new detergent bar exhibited approximately three times the cleaning efficiency of the coconut oil salt water soap which formerly served as the standard4 of acceptance.

. The soap and chemical industries responded cooperatively and promptly to make available the quantities of the new all-purpose detergent bar that were required.

The Planning Division of the Office of the Quartermaster General of the Army similarly developed and issued a specification, for all-purpose bar detergent containing synthetic detergent.

By

Louis Mc Donald

California Institute of Technology

The specifications for Navy allpurpose bar detergent and Army allpurpose detergent, however, both required a high ratio of synthetic nonsoap detergent to soda soap. Navy specifications a and required a minimum ratio of salt free synthetic detergent and soda soap of 2:3 and 2:1 respectively. Army specification, called for a minimum ratio of salt free synthetic detergent and soda soap of 1:1.

The need for ratios of synthetic detergent and soap of the order of magnitude specified by the Navy and Army, was in part substantiated by J. C. Harris, and a. In his evaluation of three different synthetic detergents and soap, it was found, that optimum cleaning efficiencies were exhibited at ratios of synthetic detergent and soda soap of 1:1.5, 1:1.5 and 1:0.66 respectively for the three synthetic detergents tested.

It is apparent that incorporation of substantial amounts of salt free synthetic detergent is necessary, in mixtures per se of synthetic detergent and soap, to attain the cleaning efficiencies required by specifications, and in force. The use of non-soap organic detergents and soda soap in the order of ratios of 2:3 and 2:1 does, however, entail certain disadvantages, notably high cost, processing difficulties with conventional soap making machinery and less desirable performance features, such as diminished rinsability and a tendency to defat the skin,

It has now been found that the use of certain combinations of synthetic detergents and soda soaps together with a resinous binder composition makes possible the formulation of an effective and desirable all-purpose detergent bar₁₀* which embodies none of the disadvantages associated with the production and use of bar detergents containing substantial proportions of non-soap organic detergents.

When effective combinations of synthetic detergents and resinous binder are used with soda soap, detergent bars which comply with the performance tests of specifications, 5, and 6 for Navy and Army all-purpose bar soaps; and which at the same time embody ratios of organic non-soap detergents and soda soap of 1:10 and 1:133 can be produced.

In addition to the requirement of high cleaning efficiency, the detergents used in conjunction with a resinous binder should exhibit the following properties:

Type 1 should readily disperse magnesium and calcium soaps in the presence of soda soap solution.

Type 2 should solubilize soda soaps even in the presence of electrolytes in concentrations normally found in sea water.

ANY of the commercially available anion active synthetic detergents function effectively as Type 1 components of the composition. The sodium salts of sulfonated myristyl collamide, cetyl phenol sodium sulfonate, cetyl napthylene sodium sulfonate, sodium salts of sulfated long chain fatty acid esters and alkylated phenol sulfonate-poly-ether sodium sulfate are a few examples. Of the group cited the alkylated phenol

^{*} The right to produce this all-purpose detergent bar underso on a royalty free basis has been granted to the Government for the duration of hostilities plus six months.

sulfonate - poly - ether sodium sulfates are especially satisfactory with respect to performance and processing characteristics.

Such materials as poly ethylene oxide condensates, aryl substituted alkyl poly-ether alcohols and hexitol ether fatty acid partial esters such as the hexitol ether stearates or oleates are desirably incorporated as Type 2 detergents.

The third component, of the improved detergent bar, required only to the extent of 0.5 per cent, is a specially plasticized resinous binder which functions to promote the formation of micelles in solutions of the cited non-soap detergents; and at the same time to equalize the rate of solution of the soda soaps and non-soap detergents. Ethyl cellulose ether, when properly incorporated, functions satisfactorily as a binder material.

The following data, which was developed in accordance with the test procedures outlined in 2, will serve to show the functions of the components of the new detergent bar individually and in combination. Similarly developed data of performance tests of other soaps are included for purposes of comparison.

The ability to foam or lather (Figure 1) of commercially produced (80 tallow-20 coco) milled flake is increased by the addition of approximately 9 per cent of the proper combination of non-soap detergents as follows:

In water of 70 parts calcium carbonate hardness per million—zero per cent, in water of 150 parts per million hardness—12 per cent and in water of 300 parts per million hardness—11 per cent.

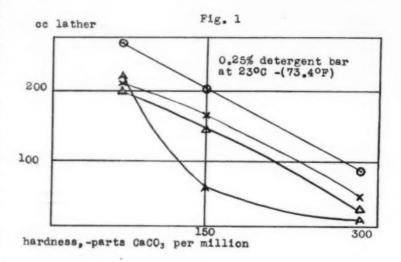
The incorporation of a suitable ethyl cellulose ether binder in this detergent mixture increases by 30 per cent its ability to lather in waters of hardness that ranges from 70 to 300 parts per million.

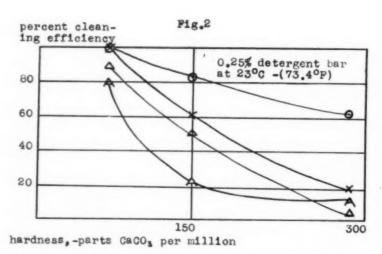
The performance characteristics of a sample of all-purpose detergent bar processed in accordance with Army Specification OQMG No. 100A₅ show that dilute solutions of the soap are sensitive to the deleterious action of calcium salts in moderately hard water.

Washability tests, performed in accordance with2, show the effect of the addition of efficient combinations of non-soap organic detergents and resinous binder to milled flake. The data developed and plotted in Figure 2 shows an increase in the cleaning efficiency of 80 tallow-20 coconut oil milled flake of 9 per cent upon the admixture of nine parts per hundred of the proper combination of synthetic detergents when used in water that ranges in calcium carbonate hardness from 70 to 300 parts per million.

The incorporation of an effective resinous binder to the extent of 0.50 per cent in the detergent bar increases the initial cleaning efficiency by 30 per cent in water of 150 parts per million hardness, and by 50 per cent in water of 300 parts per million hardness.

TABLE 1 of performance characteristics in sea water shows that the new detergent bar exhibits perfect cleaning efficiency despite the evidence of little ability to produce foam or



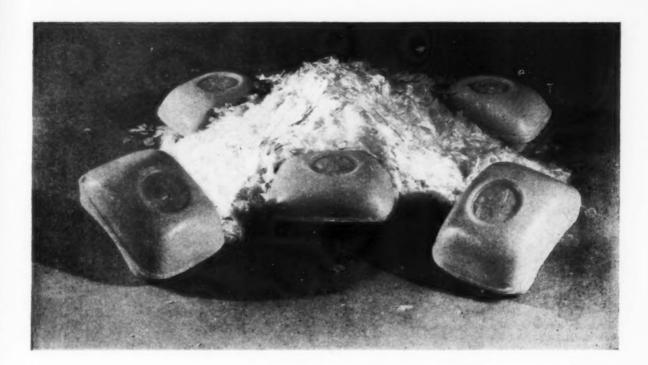


Δ = 80 tallow 20 coconut oil milled flake

X = A plus 5% detergent 1 and 4% detergent 11

⊙ = x plus 0.5% ethyl cellulose binder composition

A = milled detergent bar processed in accordance with OQMG100A for all-purpose soap



lather. A sample of material produced in accordance with 8, contrastingly developed a volume of lather equal to that which it produced in soft water, but at the same time in sea water it showed noticeably lower cleaning efficiency.

The ability of proper combinations of non-soap organic detergents and resinous binder to solubilize and increase the cleaning efficiency of difficulty soluble soda soaps is shown in Table 2. The cleaning efficiency of 0.50 per cent solution of pure sodium stearate in water of calcium carbonate hardness of 300 parts per million was increased by 80 per cent and the volume of lather produced was doubled when

TABLE 1
Performance of 2.0 per cent concentration of detergent in sea water.

| Sample | cc of lather | Percent cleaning efficiency |
|---|-----------------|-----------------------------|
| Milled flake (80 tal- low — 20 cocoanut oil) | 0 | 0 |
| Milled flake + 5% Type 1 detergent and 4% Type 2 detergent | 45 | 100 |
| Milled flake + 5% Type 1, 4% Type 2 and 0.5% resinous | | |
| binder Sample = OQMG | 50 | 100 |
| 100A | 217 | 80 |
| | | |

Milled bars and flakes of the new all-purpose soap are said to exhibit increased strength through the incorporation of the synthetic detergent-binder. Lessened susceptibility to damage in handling, packing and shipping is a decided advantage claimed for the product.

5 per cent Type 1 synthetic detergent, 4 per cent Type 2 synthetic detergent and 0.50 per cent resinous binder was incorporated with the pure soap.

Milled bars of the new all-purpose soap possess certain desirable physical characteristics which are not found to the same degree in conventional milled soap. The incorporation of the synthetic detergent-binder composition materially increases the mechanical strength of the milled tablets and thereby lessens the susceptibility to damage in handling and in transit, and at the same time makes possible the use of less expensive packaging materials.

Milled flake of this formulation similarly exhibits greater mechanical strength and resistance to impact than conventional milled flake, and accordingly is not as readily crushed or subdivided into dust or fine particles in the course of handling or use.

The resinous binder of the allpurpose detergent bar also functions as a fixative for certain essential oils and aromatic chemicals and thereby promotes the retention of perfume or odorant throughout the entire period of use.

References

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3. Navy Department, Bureau of Ships Specification 51D7 (INT), Detergent; Salt Water, Bar Form. April, 1942. (Turn to Page 61)

TABLE 2

Performance of 0.5 per cent concentration of detergent in water of 300 parts CaCO₃ hard-

| ness per r | nillion. | | |
|-----------------------|----------|-----|--|
| Milled flake (80 tal- | | | |
| low -20 cocoanut | | | |
| oil) | 253 | 100 | |
| Milled flake + 5% | | | |
| Type 1 and 4% | | | |
| Type 2 detergents | 218 | 100 | |
| Milled flake + 5% | | | |
| Type 1, 4% Type 2 | | | |
| and 0.5% resinous | | | |
| binder | 238 | 100 | |
| Sample = OQMG | | | |
| 100A | 170 | 70 | |
| Sodium stearate, | | | |
| pure | 80 | 20 | |
| Sodium stearate. | | | |
| pure + 5% Type 1, | | | |
| 4% Type 2 and | | | |
| 0.5% resinous | | | |
| binder | 160 | 100 | |



PLEA for the relaxation of quota restrictions on the small soap manufacturer-or perhaps for the elimination of all restrictions on soapmaking with the exception of ceiling prices and inventory restrictions - has been voiced by E. O. Gillam of Gillam Soap Works, Fort Worth, Texas. Mr. Gillam charges that now that ex-quota soap business is no longer freely available, the smaller soap manufacturer is in many cases operating at a decided disadvantage under the WFA fat quota controls, and that in some cases smaller soap makers are faced with the threat of being forced to suspend operations entirely. Mr. Gillam's open letter to the industry, his communication to the Smaller War Plants Corporation on the subject, and another letter to SWPC by another small soap producer on the same topic, follow:

> Fort Worth, Texas October 20, 1945

TO THE SMALL INDEPENDENT SOAPERS:

The enclosed copy of my letter to the Smaller War Plants Corporation, is self-explanatory.

Circumstances are obvious that unless we small soapers can get from under the present quota restrictions immediately, that instead of closing our plants a goodly portion of each quarter, that we will be closed permanently while the major soapers are running night and day, as well as spending millions for advertising and expansion, which is what they are entitled to do and are able to do because they have an effective organization with proper representation within the War Food Administration.

This fact impresses upon us small

soapers the importance of organization and representation, which is imperative if we are to be permitted the same proportionate operation as the majors.

I urge you to immediately second my suggestions to the Smaller War Plants Corporation and make additional ones affecting our own self preservation. Your comments are invited on the possibility of a permanent organization of small soapers for the purpose of united action in the matter of state and government control, production and marketing. If the War Food Administration is continued as the director of soapmaking policies, we, too, should have a united voice in their rulings, as one can easily see through their continued control that they are not for the best interests of the small soapers, who have no voice in their rulings.

YOUR IMMEDIATE ACTION IS IM-PERATIVE!

Yours sincerely,

EOG:JW Enc.

Gillam Soap Works E. O. Gillam, Owner

Fort Worth, Texas October 20, 1945

Smaller War Plants Corporation Washington, D. C. ATTENTION L. TERRY WILLIAMS: Gentlemen:

In view of the fact that your department was organized for the purpose of protecting the existence of small private and unorganized business in these United States I wish to call your attention to the dangerous condition being perpetrated on the smaller spapers of the soap industry at this time.

As you know, since 1941 the soap industry has been controlled nationally by the War Food Administration, and it has been my understanding, as recorded in the original WFO Order FDO 42 of March 31, 1943. that this Administration with its orders were "IN ORDER TO ASSURE AN ADEQUATE SUPPLY AND EFFICIENT DISTRIBUTION OF FATS AND OILS TO MEET WAR AND ESSENTIAL CIVILIAN NEEDS."

The war is over. Army and Navy ware-houses are bulging with soap, contracts have been cancelled and supplies are being sold back to the public and even the storerooms of most industrial soap users are well-filled, enough in some instances to last a year. The present "soap shortage" exists only among the individual housewife, who has been patriotic enough not to hoard, and among the small laundries and washaterias, who have not been counted as a good post-war connection by the large companies.

The base period on which soap manufacturing quotas are based is 1940 and 1941, at which time most of us small soapers were struggling for our very existence against

million-dollar radio programs, which are still being carried on. Also during these years the government was establishing many camps and they were crying desperately for soap, so much so that an aggregate of 50 per cent of our business during these two years went to the Federal government and their agencies. Under these circumstances, when the war came and the War Food Administration took over control of the soap industry and set quotas based on 1940 and 1941 CIVILIAN PRODUCTION ONLY, this directly penalized many of us small soap manufacturers, who had heard the appeal of the Federal Government and furnished them soap before the 'emergency existed or quotas were ever heard of

The small soap manufacturers, having no organization of their own, have had no prestige nor influence in the War Food Administration, and since their expert advisors and consultants are either ex-employees or officials from the major soap companies and do not in any way understand, or seek to understand, small soapers' problems, hence, as indicated in the June, 1945, issue of "SOAP" Magazine, the small soaper is receiving unfair treatment at the hands of the WFA and the small soapers should have within this governmental department a representative who understands their problems, if this department is to continue to function in their capacity of dictating the policies of the soap industry in their entirety.

This quota-penalty did not affect us generally during the war, since government sales were ex-quota and the government bought heavily, to capacity in our case, of any stap manufacturer who could and would manufacture soap under their specifications.

Texas Manufacturer Suggests Small Soapers Band Together To Protect Joint Interests

Their need of soap was so great and their demands so insistent, that we, along with many other small and large soapers alike, increased our capacity in order to meet emergency demands, in some cases increased production ranging from 20 to 100 per cent.

The soap industry, and even the soap consumer himself, was willing during the emergency to bend every effort to winning the war; however, all us small manufacturers have looked forward to the end of the war and the releasing of cur industry from such a stringent civilian quota, which during wartime was a necessity.

With the end of the war and the lifting of most restrictions from industry, yet there has not been one single ruling passed for the relief of the small soap manufacturers!

I say "no relief for the small soapers" because the large soapers are still welltaken care of as is clearly indicated by their running day and night shifts (while many small soapers are shut down) and the milliondollar expansion project of Colgate in Kansas City, Jeffersonville, Ind., Jersey City, N. J., and other places, with a 120,000-pound daily capacity, and also negotiations for new plants in Fort Worth, Dallas, Houston, New Orleans, Shreveport and other places, of the other What government contracts now being let are going to the large soapers, which contracts are ex-quota, and export shipments, which are also ex-quota under WFA Certification, are naturally as a matter of course taken over by the majors who have their connections and exchanges so wellarranged. This dispenses with all ex-quota business, leaving the small soapers to operate solely on their penalized quotas, which are so short that we stand by with closed plants and helplessly watch the majors pick the "cream of the consumer crop," OUR best customers.

As a result of the present arrangement, there is no equitable distribution of soap, competition is eliminated, and no one is permitted to go into the soap business who was not operating in 1940--1941, except "black market plants," of which I understand there are many.

Should these restrictions continue, the small soapers will be irreparably injured, many eliminated; as we cannot long survive this unfair quota system, which, no doubt, will continue in operation as long as permitted.

My suggestion, in order to allay this danger to small soapers, and to encourage

salvage and importation of fats and oils, and to discourage hoarding, to grant an equitable distribution, to encourage competition and to prevent monopoly, is that the Smaller War Plants Cerporation should petition the War Food Administration to release ALL restrictions on soapmaking, with the exception of ceiling prices and inventory restrictions, and permit competition amongst the soap industries again, which will completely eliminate the fat and oil and soap shortage.

While it has been suggested to us that quotas be revised and be based on the 1940 and 1941 over-all production; or be based on the over-all years' production previous to V-J Day; yet it would seem that, while this last suggestion would be a relief to a small degree, the only fair, legitimate and American Way would be to release ALT restrictions as indicated herein, and if there is still a "shortage" and soap need be rationed, let the Government itself control same on a fair and equitable basis.

Very truly,
Gillam Soap Works
E. O. Gillam, Owner

Chicago, Illinois October 11, 1945

Li Terry Williams 1028 H.O.L.C. Bldg. 101 N. W. Indiana Washington, D. C.

SOAP DIVISION SMALLER WAR PLANTS CORPORATION

Gentlemen:

Mr. Gillam of the Gillam Soap Co., of Fort Worth, Texas, visited us several days ago and discussed a problem affecting both of our companies.

Particularly the quota for use of fats and oils, as is controlled by W. F. O. 42 and Amendments. We consider our positions very precarious. Very shortly, we will complete our Government contracts plus the slackening of other industrial quota-exempt fats and oils which we are now using. By discontinuing a great portion of our quota exempt consumption

of our fats and oils, it would cut our production capacity to less than half of our present production. Such a condition would necessitate the laying off of practically half of our factory labor and unless we get some relief from the quotas in effect at the present time, it will create a considerable hardship in our company as well as on our embloyees.

We ask you, if in your opinion, there is a possible chance to have the quota adjusted for small companies like ours to enable us to continue in operation during the reconversion period and eliminate the necessity of disrupting the organizations we have in effect now. Would appreciate your comments and suggestions in this matter at your earliest convenience.

Very truly yours,

Chicago Sanitary Products Co. Charles R. Lichtenberg, President

Soap Additives

Additions to soap include the modern synthetic or partly synthetic products such as mono- and di-glycerol esters and glycol esters. Many wax-like products are now on the market such as derivatives of wool fat with a high percentage of cholesterol and hydroxy cholesterol. These superfatting agents possess valuable properties in high-grade toilet soaps.

Addition of fatty alcohols such as cetyl alcohol is often recommended. From 1 to 5 per cent of cetyl alcohol improves the effect of toilet soap on the skin, making a more cosmetic type of product. Other important additives are the polyethylene glycols such as the Carbowaxes and higher polymers. Together they comprise a series of products which include both liquids and wax-like solids. All are unctuous but water-soluble, a combination of unusual properties. Such compounds should be of special value in textile soaps, and possibly also in toilet soaps. Methyl cellulose is especially applicable as an additive to soft soap and liquid soaps. J. Davidsohn and A. Davidsohn. Industrial Chemist 21, 461-4 (1945).

Estimation of Oil Mixtures

A spectrophotometric method has been described for the determination of soybean oil in admixture with cottonseed oil. The method provides a simple and rapid means of detecting gross adulteration of one oil with another and permits an accurate determination of linolenic acid for use as a criterion of the economic value of an oil mixture and as a guide in oil processing. The method described can be extended to mixtures other than those of soybean and cottonseed oils. R. T. O'Connor, D. C. Heinzelman, and F. G. Dollear. Oil & Soap 22, 257-63 (1945).

Sulfosuccinate Detergents

A detergent in solid cake form consists of a water-soluble salt of di-(normal octyl) sulfosuccinate and boric acid in the ratio of 5-15 per cent by weight of the former to 95-85 per cent by weight of the latter.

Another composition contains 0.5-3 parts by weight of cyanamino



From Current Literature in the Soap and Detergent Field

ethyl myristate, 5-10 parts of an alkali metal salt of the sulfosucsinic acid ester of a 6-10 carbon alcohol, and 10-50 parts of an alkali metal salt of pyrophosphoric acid. C. R. Caryl, to Am. Cyanamid Co. Canadian Patents 430,757 and 430,758.

Endpoint by Refractive Index

A method is proposed for determining the end points of peroxide values in the Swift Stability Test by refractive index, which increases the capacity of the Swift box to 18 individual tests and yields well defined curves. The simplicity and accuracy of the method are such as to make it a convenient tool in this test which is rapidly gaining acceptance as a standard. The method is particularly useful in extensive tests using one type of substrate throughout.

An apparent disadvantage is that a correlation must be made between butyro and peroxide value for each general type of oil to be tested, to establish a suitable end point. However, since the test would be run by peroxide value anyway, little time is required to measure the butyro of each sample and thus establish the relationship for the type of oil under consideration. L. D. Chirgwin, Jr. Oil & Soap 22, 254-7 (1945).

Detergent from Petrolatum

A petroleum fraction of a sort not lighter than petrolatum is cracked under conditions to avoid polymerization. The unsaturated products of more than 8 carbon atoms are reacted with a strong sulfating agent. The resulting sulfate is neutralized. W. J. Sweeney, to Standard Oil Development Company. Canadian Patent No. 430,-059.

Soap-racking Machine

A machine is described in which extruded soap is received on a support on which the soap solidifies. The solidified soap is fed to a rack which is automatically removed and replaced by a succeeding rack. C. T. Walter, to Industrial Patents Corporation. Canadian Patent No. 430,424.

Dilatometric Studies

Dilatometric curves between about -38° C. and temperatures representing the liquid state have been determined for a number of pure triglycerides and some commercial fats. From the dilatometric data and density data on the liquid samples, determinations have been made of the density in both the liquid and the solid states, the expansibility of each state with increase in temperature, and the dilation accompanying melting of the samples. From similar comparative data on the three polymorphic forms of tristearin, determinations have been made of the volume changes accompanying transformation from one form to another.

Certain relationships are pointed out among the various properties of melting point, density, expansibility, melting dilation, specific heat and heat of fusion, and the relation of these properties to chain length and degree of unsaturation in triglycerides is discussed. A. E. Bailey and W. S. Singleton. Oil & Soap 22, 265-71 (1945).

Fat in Fatty Acids

Determination of fat admixed with fatty acids is of importance in the analysis of soap-stock fatty acids. A method for this is described in which a solution containing fat and fatty acids is passed through a column of aluminum oxide. The fat and any unsaponifiable matter are readily washed through by a suitable solvent such as chloroform or ether, the fatty acids remaining strongly sorbed on the column. The position of the fatty-acid band is clearly defined if 'the column is tinted with bromothymol blue.

This sorption method for the removal of fatty acids can be applied to the determination of unsaponifiable matter in oils and fats after acidification of the saponified product, but in view of the relatively large quantity of fatty acids to be removed, the process described is preferred. After the soap solution has been extracted with ether to remove the unsaponifiable matter, the extract is washed with dilute acid to decompose the small amount of soap present, and the resulting fatty acids are removed by passing the ether solution through a sorption column. The method is applicable also to the determination of unsaponified matter in soaps. N. D. Sylvester, A. N. Ainsworth and E. B. Hughes. Analyst 70, 295-8 (1945).

Analysis of Tall Oil

A report is given of the work carried out by the Analysis Committee of the Central Laboratory of the Swedish Cellulose Industry in the development of suitable analytical methods for crude and distilled tall oil; these will form Swedish standard methods. The analysis of crude tall oil will consist of the determination of moisture, ash, water-soluble acids, and the organic substances which form the constituents of tall oil, including unsaponifiable matter, acids insoluble in petroleum ether, resin acids, and fatty acids. Distilled tall oil will require only the determination of resin acids, fatty acids, and unsaponifiable matter. The iodine number cannot be used for the characterization of distilled oil. In addition a third method is proposed

for very accurate results. H. Niehlen. Svensk Papperstidn. 48, 345-50 (1945).

Antiseptic Detergents

Soap has always been a valuable antiseptic agent. Among the new synthetic detergents, products are available which can be used in neutral or acid solutions to give a much stronger antiseptic action than is possible with soap solutions. These new detergents are valuable because a really worthwhile antiseptic action is obtained from products which are not toxic. The new detergents such as "Nacconol" are non-

SOAP SPRAY TOWER DESIGN

SHOULD the small soap maker consider putting in a spray tower as a part of his post-war plant modernization program? What are the problems of design and construction? What is the patent situation? Can the average small soaper expect to find a market for the increased output of washing powder or granulated soap that a spray tower will give him. The answer to these and other questions on spray tower design and operation in an article next month by Alan Porter Lee, consulting chemical engineer and soap plant designer.

volațile so that they are stable under storage conditions, and they dissolve rapidly to start their sterilizing action. Further study of these products is necessary to establish the optimum conditions for use for antisepsis. Lawrence H. Flett. Oil & Soap 22, 245-9 (1945).

Floating Soap

A hard cake of milled soap containing an acid is converted to a hard cake of buoyant milled soap without appreciably changing the formula. The method is to reduce the soap to a fluid mass by boiling, adding sodium bicarbonate and stirring to distribute the bicarbonate throughout the mass. The amount of sodium bicarbonate is such that its reaction with the acid will liberate minute portions of carbon dioxide, which will be scattered throughout the mass to produce minute cells in a quantity sufficient to render the cake buoyant. The mass is then cooled and shaped. C. W. Kelley. Canadian Patent No. 429,508.

Soap Machinery Improvements

Important developments have been made in soap-drying machinery. The use of steam-heated rollers for drying, followed by water-cooled rollers, has shortened the drying process in the manufacture of milled soap. A method has been described for molding and cooling molten soap with the formation of small bubble-free blocks of soap suitable for direct stamping into tablet form.

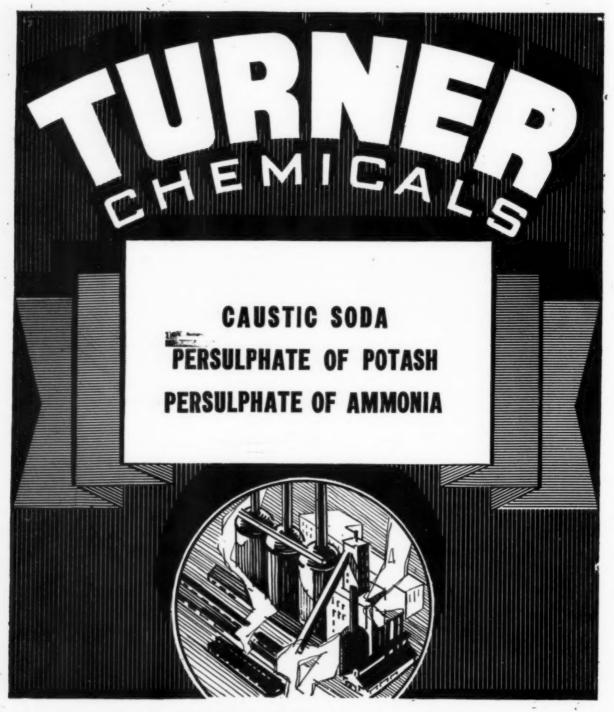
In the spray-drying process for the manufacture of powdered soap, which is not new, improvements have been made which make the process economical even for smaller factories, and workable even for the manufacture of toilet soap. The hot liquid soap from the kettle is spray-dried, milled and plodded.

An important development in the manufacture of soap is the adjustment of chilling, milling and plodding, so that the product contains a higher percentage of so-called beta soap, which has a greater solubility and better sudsing power than omega-soap, although having the same chemical composition, water content, and general granular structure.

By working a soap while it is being cooled from a fluid or molten state through varying degrees of plasticity, the beta-phase is formed. The final temperature of the soap leaving agitating operation must be below a critical value which varies with the composition of the soap and its moisture content, but above a limit at which the soap loses its pasty cohesiveness. The product so formed is softer, less tough, and less translucent than milled soap of like formula. J. Davidsohn and A. Davidsohn. Industrial Chemist 21, 416 (1945).

Surface-active Compounds

Surface-active compounds are sulfonated condensation products of an aromatic compound with a chlorinated petroleum fraction, or with an olefinic product obtained by removing HCl from the chlorinated fraction. The aromatic nucleus may be benzene, naphthalene, or a diphenyl nucleus. L. H. Flett, to Allied Chemical & Dye Corp. U. S. Patent No. 2,364,782.



JOSEPH TURNER & COMPANY

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TRADE EWS...

Charge Illegal Fat Use

A criminal information charging illegal use of 4,700,000 pounds of fat was filed in U. S. District Court at Chicago, Nov. 15, against the Family Soap Co., and its successor, Zoll Soap Co., 1138 Fullerton Ave. The charges specify that the companies had exceeded fat quotas allowed them under WFA regulations.

Clarify Converters' Fat Quotas

The War Food Administration has moved to clarify some of the confusion surrounding ex-quota sales of soaps to soap converters in a recent communication to the Association of American Soap and Glycerine Producers in answer to specific questions on the subject. The WFA emphasizes that a soap converter, if he uses in a quarter soaps containing over 15,000 lbs. of fats, must either make quotaexempt products or have a quota of his own based on average quarterly use in 1940-1941 of more than 15,000 lbs. of fats per quarter. Sales by manufacturers to converters are of course exempt from the manufacturer's quota. WFO-42b does not specify what evidence the manufacturer should have to cover his sale of soap to converters, but in actual operation any reasonable evidence, such as a letter from the converter, has been regarded as sufficient.

Honor MacIntosh, of J.C. QM Depot

James S. MacIntosh, formerly general manager of Holbrook Mfg. Co., Jersey City, N. J., who has directed Army Soap Procurement at Jersey City Quartermaster Depot, Jersey City, N. J., since he was called to the depot in July, 1943, was recently presented with a special emblem and certificate for distinguished meritorious service. Colonel George F. Spann, QMC, presented the award.

Mr. MacIntosh was called to the depot at a time when a number of fires had been discovered in soaps stored in posts, camps and stations, as



JAMES S. MACINTOSH

well as in ships at sea. He was instrumental in revising specifications which eliminated this potential fire hazard.

N. Y. Trade Board To Elect

· Members of the New York Board of Trade met at the Hotel Plaza, New York, November 28, to hear an address by Antonio Espinosa de los Monteros, Mexican Ambassador.

CD&CA Members Hear Col. Moller

Members of the Chicago Drug and Chemical Association heard a talk by Col. J. A. Moller, "How We Bombed Fortress Europe," at a luncheon meeting at the Drake Hotel, November 29. Col. Moller has just returned to the Pure Oil Co., Northfield, Ill., after 44 months of service with the Army Air Corps.

Form Riches-Nelson, Inc.

George E. Riches for the past 18 years associated with the chemical department of the Americal Agricultural Chemical Co., New York, and R. Albert Nelson, connected with AAC for 19 years, have resigned from that company and formed Riches-Nelson, Inc., New York, to act as distributors of chemical and allied products.

Glycerine Supplies Still Low

The Bureau of Agricultural Economics, U. S. Department of Agriculture, reports that supplies of glycerine are the lowest in years, and warns that this lack of glycerine may slow down production of peacetime goods. The reason is of course the shortage of fats and oils and the reduction which this shortage has forced in production rates for soap and glycerine during 1945.

Stocks of crude glycerine, as of August 1, 1945, were down to 9,182,-000 lbs., the lowest level reached in many years. They compare with 9,-306,000 lbs. for the previous month, 11,201,000 lbs. for January 1, 1945, and 13,237,000 lbs. for August 1, 1944. Stocks of high gravity and yellow distilled glycerine were also at a new low figure on August 1, 1945,-19,876,000 lbs. as against 22,564,000 lbs. the month previous, 38,005,000 lbs. January 1, and 38,517,000 lbs. August 1, 1944. On c.p. glycerine the comparative figures are 22,282,000 lbs. as of August 1, 1945, 27,634,000 lbs. a month previous, 36,089,000 lbs. January 1, 1945, and 42,874,000 lbs. August 1, 1944.

Armour Contest for "Chiffon"

Armour & Co., Chicago, offered Chicago housewives 12,000 pairs of seamless nylon hose in a contest which ended Dec. 16, on behalf of "Chiffon" soap flakes. Contestants completed in twenty-five words or less the sentence beginning "I'll keep on with Chiffon soap flakes because . . ." and enclosed one box top with their entry. One thousand first prize winners received six pairs of nylon hose each and 2,000 other winners got three pairs each.

George Case Leaves Hospital

George N. Case, chemist with Tech Soap Co., Chicago, is back on duty after a spell in a hospital, necessitated by a laboratory accident.

Christmas 1945

At Christmas 1945—as we pause to extend Season's Greetings to old friends and new alike, we deeply appreciate the constructive attitude of consumers of our products all through the difficult war years.

Looking forward with confidence to the years of progress that inevitably follow war's turmoil, we shall devote all our energies and all our resources toward helping to build an enduring peace at home and abroad based upon prosperity for all good men.

WESTVACO CHLORINE PRODUCTS CORPORATION



Army Reports on Soap Cutbacks

THE prospect of more soap for the civilian buyer is held out by the Army Quartermaster Depot as a result of sharp cutbacks that have been made in procurement of all types of soap for the army. At the Jersey City Ouartermaster Depot, where all Army soap buying was centralized during the war period, Colonel George P. Spann, OMC commanding officer, stated that surplus stocks of soaps from other services are picked up by the QMC where possible, eliminating the placement of new orders and leaving soap manufacturers free to produce for the civilian market.

Figures on the extent of Army cutbacks were released by James S. MacIntosh, who has directed soap procurements at the depot for several years. Requirements for the last half of 1945 were cut to a minimum, he indicated. Chip or flake soap purchases for the first half of 1945 totalled 4,515,250 pounds, as compared to no procurements for the second half. No grit cake soap was bought for the last half of the year, because the Quartermaster Corps was able to utilize 6,500,000 cakes which were surplus with other services.

One of the biggest soap items used by the Army is ordinary issue soap. After V-J Day, fourth-quarter requirements amounting to 63,882,000 pounds were cancelled. An additional 18,186,000 pounds of Quartermaster issue and 5,000,000 pounds of Medical Corps issue soap were also cancelled. During the first three-quarters of 1945, a total of 291,335,000 pounds of ordinary issue soap was procured by the depot.

Corresponding decreases can be seen in other items. Almost 8,000,000 pounds of powdered soap, of which a shortage has existed in civilian markets, were purchased during the first nine months of 1945 for Army use. The Army has made no purchases of powdered soap for the last quarter of the year. Another laundry soap which housewives may expect to see shortly is low titer laundry powder. No pur-

chases of this product were made for the last quarter of the year, while 5,270,000 pounds were bought for the first three-quarters. Almost one and a half million cakes of white floating soap were bought for Army use during the first half of 1945, 525,000 cakes during the third-quarter and none for the last quarter. Contracts covering 2,926,000 cakes were terminated.

Sharp cutbacks have also been effected on the Army's "all-purpose" soap. No purchases have been made for the last quarter, and contracts covering 11,171,000 cakes have been terminated.

Purchases of branded toilet cake soap and package granulated soap for the second quarter were extended to cover requirements for the remainder of the year. Cancellations were made of orders for 79,000,000 cakes of toilet soap, 2,700,000 packages of granulated soap, and 4,500,000 cakes of wrapped laundry soap. An analysis of Army inventories indicates sufficient supplies on hand at the present time for the first half of 1946.

François de Laire Visits U. S.

Francois de Laire of the well-known French perfuming materials house of Frabiques de Laire at Issyles-Moulineaux near Paris returned to France on November 21 after a month stay in the United States, during which time he made his headquarters with Dodge & Olcott, Inc., New York, for many years American representatives for de Laire. The primary purpose of his visit to the United States was as part of a French Government commercial mission. He also visited Washington and Canada while here.

New P & G Plant at Sandusky

Procter & Gamble Co., Ivorydale, O., has announced plans for a new soap factory at Sandusky, O., which will be located on a 30-acre tract of land and designed to use the continuous process of soap manufacture. This will be P & G's third new plant since 1940, and will incorporate a number of changes and improvements in the continuous process based on experiences in operating the other two new plants at Quincy, Ill., and Dallas, Tex. Between 300 and 400 persons will be employed at Sandusky, thus furthering P & G's plans for creating new jobs to assist returning war veterans.

A new men's line of toiletries, "Cargo" was introduced recently by Duncan Storm, Ltd., Minneapolis. Sets consisting of shaving mug, talc and after-shave lotion, such as that shown below, are a feature of the new line, which stresses fine packaging.



DEODORANTS and PERFUMES for

Pays

ORE and more manufacturers of sprays, insecticides and other technical products are finding economical solution to their odorizing problems through our laboratories. Why? Because most of the low cost, aromatic specialties we supply them are essentially custom-made compounds, built around formulations of proven effectiveness, with careful modifications to fit them to the particular requirements of each individual customer. The result of this procedure is invariably a finished product that is economically and esthetically pleasing both to the manufacturer and to the user of his goods. Therefore, if you want an odorizing or a deodorizing job done on your product —one that will be gratifying to you and satisfying to your customers -send us an unperfumed sample of your goods along with any information that might help us to interpret and fulfill your needs correctly. The sample will be returned fully masked and perfumed as you wish.

FRITZSCHE BROTHERS, Inc.

BOSTON CHICAGO LOS ANGELES ST. LOUIS TORONTO, CANADA MERICO, D. F.



HARRY W. GLEICHERT

Columbia Chemical Appoints

The Columbia Chemical Division of Pittsburgh Plate Glass Co. has just announced the appointment of Harry W. Gleichert as director of sales for the division. Mr. Gleichert has been with Columbia since 1920 and has served as assistant director of sales since 1937. He will make his head-quarters in Pittsburgh.

Another executive appointment brings John C. Leppart to the position of assistant to the operating vicepresident of Southern Alkali Corp.,



JOHN C. LEPPART

Corpus Christi, Texas. Mr. Leppart was assistant director of sales of the Columbia Chemical Division from 1931 until January 1, 1942, when he was loaned to the War Production Board in Washington, D. C., where he served as deputy chief of the inorganics branch of the Chemicals Bureau throughout the war. Mr. Leppart will make his headquarters in Corpus Christi. Southern Alkali is owned jointly by Pittsburgh Plate Glass Co. and American Cyanamid & Chemical Corp.

20th Chemical Show Feb. 25

Plans for the 20th Exposition of Chemical Industries, to be held at the Grand Central Palace, New York, February 25 to March 2, 1946, are reported developing rapidly under the direction of Charles F. Roth, manager of the exposition. This being the first post-war show, coupled with the fact that so many chemical plants are starved for equipment, points to a larger show and more interest on the part of visitors than ever before. Numerous advances in new products, equipment and manufacturing technique are expected to be featured in the 1946 exposition.

Allied Drug Assn. Annual Party

The Allied Drug and Cosmetic Association of Michigan held its annual games party, Nov. 14th, at the Detroit Leland Hotel, Detroit. A program of games followed a turkey dinner. William M. Russell of the Detroit office of Monsanto Chemical Co. is chairman of the entertainment com-

Stauffer Leases RFC Plant

Stauffer Chemical Co. has just announced the expansion of operations in the caustic soda and chlorine section of the plant at Las Vegas, Nevada, which they are operating under lease from the Reconstruction Finance Corp. Stauffer are reported using only half the facilities of the huge plant, (used for wartime production of magnesium), and are offering other manufacturers an opportunity to establish branch factories at the location in a cooperative arrangement with the RFC. In addition to chlorine, caustic soda, anhydrous hydrochloric acid, aluminum chloride, and hydrogen, Stauffer will soon offer an extended list of other chemical products from the new plant.

Lanair Buys Schmidt Soap

Lanair Co., Chicago, manufacturers of liquid soaps, have purchased the old Chicago toilet soap firm of George A. Schmidt & Co. The Schmidt factory, which turns out shaving cream, toilet preparations, potash soaps, etc., in addition to cake toilet soap, is being modernized. F. R. Schmidt, son of the founder, George A. Schmidt, will continue with the company.

Erlen Soap Build New Plant

Plans have been completed for construction of a new factory building, 101 x 134 feet in area, and an office building, 76 x 34 feet in area, on Flower Street near Providencia Street, Burbank, Calif., for The Erlen Soap and Chemical Company, of 2632 East Fifty-fourth Street, Huntington Park, Los Angeles. The steel frame and corrugated iron factory and the frame and stucco office will cost \$35,000.

Ease Soap Export Licenses

The Foreign Economic Administration no longer requires licenses for the export of certain scouring powders and abrasive soaps, it was learned recently. Removal of Commodity Classification 872,400 from the FEA's list of regulated commodities means that individual export licenses will not be required nor a dollar limit applied to exports of "scouring bricks, pastes, powders, abrasive type soaps, and household washing powders (fat content not over 25 per cent), except pastes, powders, soaps and household washing powders (fat content above 10 per cent, but not above 25 per cent), and abrasive types of pastes, powders, or to the countries in the FEA's group K. soaps (fat content above 10 per cent),"

Par Soap Co. Buys C & S

J. Treager of Oakland, Calif., recently sold to the Par Soap Co. of Oakland his interest in the C. & S. Soap Co., also of Oakland. The sale included the good will, company name, the trade name "Par" and the equipment. Mr. Treager advises that he will shortly re-enter the soap business under another name.



Hooker Electrochemical Co., Niagara Falls, N. Y., was the second company in the country to receive the special Army-Navy "E" award for work on the atomic bomb. The presentation was made on October 2 by Major General Leslie R. Groves. Pictured are from left to right: Edwin R. Bartlett, president of Hooker Electrochemical Co.; Colonel Kenneth D. Nicols, district engineer of the Manhattan District; Brigadier General

N. Y. Drug Section Elects

The 55th annual meeting and election of officers of the Drug, Chemical and Allied Trades Section of the New York Board of Trade was held at the Drug & Chemical Club, New York, November 20. The complete slate of new officers will be carried in our next issue.

Pennock Aids Veterans Fund

Charles A. Pennock, president of Hudnut Sales Co., New York, has been appointed to the chairmanship of the Cosmetics and Toilet Goods Division for the National Service Fund of the Disabled American Veterans.

Dow Expands in Plastics Field

Dow Chemical Co., Midland, Mich., has announced expansion plans in the plastic field, with the contemplated erection of new production facilities on which \$15,000,000 will be spent over the course of the next five years. Dr. Willard H. Dow indicates that when this new plant capacity has been added, the Dow Company will be producing at least 150 million pounds of plastic materials per year. Dow at present manufactures four

Thomas E. Farrell, assistant to General Groves; Major General Leslie R. Groves, chief of the Manhattan District Project; Harry M. Hooker, chairman of the board of Hooker Electrochemical Co.; Commodore William S. Parsons, Naval Ordnance expert who flew in the B-29 which dropped the first atomic bomb on Hiroshima; John W. Burden, president of the Niagara Hooker Employees' Union; and Dominick Justiana, union representative.

basic plastic materials, "Styron," Ethocel," "Saran" and "Styraloy."

Atlas Powder Advances Frorer

J. R. Frorer, formerly manager of the polyalcohol division, has been appointed general manager of the industrial chemicals department of Atlas Powder Co., Wilmington, Del. He succeeds M. J. Creighton who was elected vice-president.

T. G. A. Scientific Meeting

A meeting of the scientific section of the Toilet Goods Association was to be held at the Hotel Biltmore, New York, December 6. Dr. Kenneth L. Russell is chairman of the section.

Joins Foster D. Snell

Chester A. Snell has joined the staff of Foster D. Snell, Inc., consulting chemists and engineers, Brooklyn. Dr. Snell is an alumnus of Polytechnic Institute of Brooklyn where he received his B.S., M.S., and Ph.D. degrees in chemistry. For the past three years, Dr. Snell has been connected with the Chemical Development Division, Aluminum Company of America, East St. Louis, Illinois.

Soap Sales in Further Decline

Soap sales continued to decline during the third quarter of 1945, with deliveries of hard soaps dropping almost thirteen per cent under the second quarter figures, according to the regular quarterly sales census report of the Association of American Soap and Glycerine Producers, just released. Sales totaled .654,890,000 lbs. during the third quarter, which was 19% under the corresponding 1944 quarter, and 12.8% under the 751,190,000 lb. total for the second quarter of 1945. On a dollar basis, this year's third quarter sales amounted to \$93,125,000 which represents a drop of 9% from the second quarter total of \$102,325,-

For the first nine months of 1945 the 68 manufacturers who supply quarterly sales figures to the soap association reported delivery of 2,218,-256,000 lbs. of hard soap and 3,490,000 gallons of liquid soaps. This amounted to a decline of 8.6% from the 1944 figures for manufacturers of hard soaps, and an increase of 16.3% for liquid soap manufacturers.

Deliveries of liquid soaps during the 3rd quarter of 1945 were reported as being 26% above the figures for the second quarter—997,000 gallons as compared with 789,000 gallons for the second quarter.

New Hooker Research Laboratory

Hooker Electrochemical Co., Niagara Falls, N. Y., has just announced the organization of a new physical research laboratory. The primary function will be to provide physical analyses and controls for all phases of chemical work at the Hooker plants. The new laboratory will be under the direction of Dr. L. J. Brady, formerly a fellow at the Mellon Institute of Industrial Research.

Chas. Bryan Rejoins Fritzsche

Major Charles G. Bryan has recently rejoined the sales staff of Fritzche Bros., Inc., New York, perfuming materials, after more than three years service with the American Air Force's 51st Fighter Group. During most of this period he served in the China-India-Burma theatre.

Soap Meeting Jan. 10-11

The annual meeting of the Association of American Soap & Glycerine Producers will be held at the Roosevelt Hotel, New York, January 11, preceded on January 10th by a special session of the potash soap division of the association. The following list of discussion subjects has been announced for the potash soap meeting by Andrew P. Federline, secretary of the potash soap division:

- What's ahead in Federal regulation for potash soapmakers?
- 2. Are special linings for containers desirable to maintain apearance and quality of potash soaps?
- 3. What is the relation of synthetic detergents to the future of potash soaps?
- Would purer caustic potash improve potash soaps, and what can be done about it?
- How are phosphates used in potash soaps, and why?
- Does straight coconut oil make a better liquid hand soap than a blend?
- What are tailor-made fatty acids: do they improve quality and reduce manufacturing costs of potash soaps?
- What are the principal problems encountered in selling potash soaps, and how are they being solved?

Each topic is to be covered by a discussion leader, and following his presentation there will be an open-floor discussion. A wide attendance from the industry has been requested by Herbert Kranich, Kranich Soap Co., Brooklyn, chairman of the potash soap division.

The program for the January 11th meeting has not yet been made up. A group of speakers will discuss topics of current interest to the industry, as in previous years. Attendance is by invitation, and any soap maker interested in attending either session is asked to communicate with the Association of American Soap and Glycerine Producers. Members of the board of directors of the AASGP will be elected at the January 11th session, and they will meet subsequently to name officers for the coming year.

C-P-P Engages Kellogg Co.

Colgate-Palmolive-Peet Co. has recently contracted with M. W. Kellogg Co., chemical engineers, to use their services as consultants on process engineering.



Left, the old, industrial package for "Turco" cleaner, and, right, the newly designed consumer Turco "Tay" package. Changing markets meant changing the trade mark to a less formidable looking Turk, a more feminine type color scheme and a new name. "Tay" invaded the consumer cleaner field last month with liberal advertising.

Beauty Suppliers Meet

Two conferences of the Beauty and Barber Supply Institute were held recently, one in New York for the eastern membership and one in St. Louis for western members. The New York meeting was held at the Commodore Hotel, New York, on November 18, 19, and 20 with an attendance of 300. Jerome Edlis of the Edlis Company, Pittsburgh, vice-president, presided. The St. Louis conference which was held on December 2, 3, and 4 in conjunction with a meeting of the Institute's executive committee was attended by 250 persons and was presided over by August Probst, president of the Institute and head of the Little Rock Beauty Supply Co., Little Rock, Ark. At both meetings, plans to handle numerous post-war problems constituted the major part of the program, according to Joseph Byrne, New York, secretary of the Institute.

Chemical Salesmen, Dec. 20

The annual dinner of the Salesmen's Association of the American Chemical Industry will be held on Thursday evening, December 20, at the Roosevelt Hotel, New York. An attendance of 650 is anticipated according to W. E. Harmon of the Calco

Division of American Cyanamid, chairman of the entertainment committee. Present officers of the SAACI are Charles Alexander of L. Sonneborn Sons, Inc., president; James J. Mc-Innes of Commercial Solvents Corp., vice-president; James Ferris of Niagara Alkali Co., treasurer, and Robert Fischer of the Fischer Chemical Co., secretary.

Packaging Show April 2-5

The 1946 Packaging Exposition will be held in the Public Auditorium, Atlantic City, N. J., April 2 to 5, under the sponsorship of the American Management Association. The show is expected to be the largest in the fifteen year history of this event. Concurrent with the exposition will be a conference on packaging, packing and shipping.

Lever Canada Veteran Dies

Hugh Ferguson, former head of the shipping department of Lever Bros., Ltd., Toronto, Canada, died suddenly from a heart attack on November 12. He was 82 years old and had been associated with the company for many years prior to his retirement.



They got the idea from Crown Can

YES, it's true. From our very beginning we have gone in for personalized service in a big way. Being no chair-warmers, Crown officials spend much of their time in the field. They call on the trade regularly, helping Crown customers with their packaging problems, keeping them hep to the latest canning

procedure. What with such service and the fact that we produce cans of highest quality, it is easy to see why we have come along so fast . . . If you'd like to get in on this good thing, just drop us a line.



BIDS AND AWARDS

P. O. Toilet Soap Bid

Unity Sanitary Supply Co., New York, submitted the only bid, 26 cents a pound, on 41,000 pounds of toilet soap, in a recent opening for miscellaneous supplies by the Post Office Department, Washington, D. C.

Panama Canal Soap Awards

In a recent opening for miscellaneous supplies for the Panama Canal, Washington, D. C. office, the following bids and awards were announced on unspecified quantities of soap products: laundry soap, William Messer Corp., Camden, N. J., \$1,890, accepted; soap powder, Kamen Soap Products Co., Barberton, O., \$4,260, accepted, and William Messer Corp., Hyde Park, Mass., \$5,490; and scouring powder, William Messer Corp., Philadelphia, \$220, accepted, and Unity Sanitary Supply Co., New York, \$240.

Drew Enters Sole Detergent Bid

E. F. Drew & Co., New York, was the only bidder on 5,000 pounds of detergent in a recent opening for miscellaneous supplies by the District Government, Washington, D. C. The Drew bid was 6.75 cents.

FWA Floor Wax Bids

Among the bidders on 825 gallons of floor wax in a recent opening for miscellaneous supplies by the Federal Works Agency, Public Buildings Administration, Office of Buildings Management, Washington, were R. M. Hollingshead Corp., Camden, N. J., \$767.25 and Industrial Distributors, New York, \$907.50.

Urinal Deodorant Award to Odora

The following bids and award were announced on 20,000 cakes of urinal deodorant in a recent opening for miscellaneous supplies by the Philadelphia Navy Yard, Philadelphia; Beacon Brush and Supply Co., Philadelphia, \$1,453.33 the lot; Clifton Chemical Co., New York, \$1,500; Creco Company, Long Island City,

N. Y., \$1,800 and Odora Company, New York, \$1,300, accepted.

Drew Receives Soap Award

E. F. Drew & Co., New York, received the award on 10,850 pounds of soap, at 11.82 cents, in a recent opening for miscellaneous supplies by the Purchasing Office of the U. S. Department of the Interior, Chicago, for the Indian Service.

Treasury Dept. Insecticide Bids

Among the bidders on 100 gallons of liquid insecticide in a recent opening for miscellaneous supplies by the Procurement Division of the U.S. Treasury Department, Washington, D. C., were: Brilco Laboratories, Brooklyn, \$1.64 a gallon in five-gallon steel drums; Capitol Chemical Co., Washington, D. C., \$2.40 a gallon; R. M. Hollingshead Corp., Camden, N. J., 98 cents a gallon in five-gallon drums; Industrial Distributors, New York, \$2 a gallon and C. B. Dolge, Westport, Conn., \$2.20 a gallon in 55 gallon drums.

Rust Preventive Bids

In a recent opening for miscellaneous supplies by the District Government, Washington, D. C., the following bids were received on 110 gallons of rust preventive for penal institutions: Thomas C. Mee Co., Pawtucket, R. I., \$3.20; Lasting Products Co., Baltimore, \$2.48; Chal Brothers, New York, \$2.70; C. G. Buchanan Chemical Co., Cincinnati, \$2.04 and R. M. Hollingshead Corp., N. J., \$1.10, 98 cents and 95 cents.

Justice Dept. Scouring Powder Bids

The following bids were announced on 700 pounds of scouring powder in a recent opening for miscellaneous supplies by Department of Justice, Tucson, Ariz.; Baffert-Leon Wholesale Grocery Co., Tucson, \$2.10 a case; Fink Co., Dallas, Tex., 7.88 cents; Los Angeles Soap Co., Los Angeles, 4.325 cents; Meffort Chemical Co., Phoenix, \$6 in 100 pound sacks;

Southwestern Wholesale Grocery Co.,; Tucson, 6.75 cents and Turco Products Co., Los Angeles, 6.5 cents.

FWA Soap Award

Crystal Soap & Chemical Co., Philadelphia, received the award on 5,000 gallons of liquid soap, with a bid of \$1,575, in a recent opening for miscellaneous supplies by the Federal Works Agency, Public Buildings Administration, Office of Buildings Management, Washington, D. C.

Misc. P. O. Awards

The following awards were announced in connection with recent openings for miscellaneous supplies by the Post Office Department, Washington, D. C.: Oil Specialties and Refining Co., Brooklyn, 2,500 gallons of furniture polish, 47.7 cents; B. T. Babbitt Co., New York, 16,704 cans of caustic soda, 4.5 cents; Day & Frick Co., Philadelphia, 3,200 pounds of soap, 4.2 cents and Standard Soap Co. of Camden, Camden, N. J., 73,500 pounds of laundry soap, at 6.75 cents.

Treasury Metal Polish Bids

In a recent opening for miscellaneous supplies by the Treasury Department Procurement Division, Washington, D. C., thhe following bids were received on 144 pounds of metal polish: Oil Specialties & Refining Co., Brooklyn, 16.5 cents a pound; Solarine Co., Baltimore, 2.5 cents a pound; Imperial Products, Philadelphia, 19 cents a pound and Unity Sanitary Supply Co., New York, 2 cents.

Formula Prods. Opens Branch

Formula Products Co., 83 Elizabeth Ave., Newark 8, N. J., has opened a branch at Bridgeport, Conn.

OPPORTUNITY

Wanted New Chemical Products: Intermediate or compounds selling to industrial and commercial markets. Our client established 30 years, manufactures to standards of highest quality. Please write, communications confidential. We are fully compensated by our client. Charles H. Welling & Co., Inc., 52 Vanderbilt Avenue, New York 17, N. Y.



To our many friends
we extend best wishes
for Christmas and the
New Year



GEORGE LUEDERS & CO.

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Branches: Chicago, San Francisco, Mexico City, Montreal

One of America's Pioneer Importers and Manufacturers of Essential Oils and Aromatics

RADE MARKS

The following trade-marks were published in the November issues of the Official Gazette of the United States Patent Office in compliance with Section 6 of the Act of September 20, 1905, as amended March 2, 1907. Notice of opposition must be filed within thirty days of publication. As provided by Section 14, fee of ten dollars must accompany each notice of opposition.

Trade Mark Applications

DAT—This in upper case, extra large, black, bold letters for parasiticides and insecticides. Filed July 3, 1945 by California-Spray Chemical Corp., Wilmington. Claims use since June 5, 1945.

THANISOL—This in upper case, bold letters for the active chemical ingredient for use in the manufacture of insecticides. Filed July 4, 1945 by Hercules Powder Co., Wilmington. Claims use since Feb. 14, 1945.

SABACOP—This in upper case, bold letters for insecticide. Filed July 12, 1945 by McConnon & Co., Winona, Minn. Claims use since June 19, 1945.

INGRAM—This in large and small, extra bold, black capitals for shaving cream. Filed Mar. 7, 1945 by Bristol-Myers Co., New York. Claims use since July 13, 1944.

YES Sm—This in oversize, upper ad lower case, bold letters for shaving creams and soaps. Filed June 28, 1945 by Golden Arrow Toiletries, New York. Claims use since Dec. 27, 1943.

RATGON—This in upper case letters for rat repellent. Filed June 11, 1945 by William B. Ward Co., Kansas City, Mo. Claims use since Mar. 1, 1945.

Aero-Matic—This in upper case, bold letters for deodorant diffuser and deororant cartridge used in connection with a door check. Filed June 29, 1945 by Acme Chemical Co., Pittsburgh. Claims use since Aug. 17, 1944.

PLAST-O-WAX—This in large and small, open, shadow capital letters for floor wax. Filed May 18, 1945, by G. E. Specialty Co., Brooklyn. Claims use since March, 1944.

Lanot—This in upper case, bold letters for leather cleaner, dressing and polish. Filed May 7, 1945 by Knomark Manufacturing Co., Brooklyn. Claims use since May 4, 1945.

LANOLIZE—This in upper case, extra bold letters for cleaner, dressing and polish for leather. Filed May 7, 1945 by Knomark Manufacturing Co., Brooklyn. Claims use since May 4, 1945.

INKO—This in large and small, bold, solid and outline letters within a heavy rule box for hand cleaner. Filed May 15, 1945 by Rose Dew Products Co., Los Angeles. Claims use since Mar. 16, 1945.

SPEED—This in upper case, bold, italic letters with vertical, broken lines across them for chemically impregnated polishing and cleaning cloth. Filed May 28, 1945 by Speed Manufacturing Co., Huntington Park, Calif. Claims use since July 1, 1943.

VICTORY POWDER—This in upper case, extra bold, black letters in an arc for soap compound for washing. Filed June 6, 1945 by Legrand Chemical Co., Brooklyn. Claims use since Jan. 1, 1942.

Panda—This in upper case, bold letters beneath the fanciful drawing of the head and shoulders of a panda for shoe and leather finish or dressing. Filed June 29, 1945 by Orthmann Laboratories, Inc., Milwaukee. Claims use since May 1, 1945.

CRIMSON ROSE—This in upper and lower case, bold letters for soap. Filed June 29, 1945 by Primrose House, Inc., New York. Claims use since June 5, 1945.

P—This in upper case, reverse script letter for dentifrices. Filed Mar. 21, 1945 by Lever Brothers Co., Cambridge, Mass. Claims use since Feb. 9, 1945.

Swoon—This in upper and lower case, bold, script letters for shampoos. Filed May 23, 1945 by Granville Laboratories, Chicago. Claims use since Apr. 5, 1945.

SWIFTY—This in upper and lower case, open, script letters above the drawing of a racing dog all within an oval for furniture polish and floor wax. Filed June 7, 1945 by Boston Chemical Industries, Boston. Claims use since Feb. 2, 1945.

SUTHO—This in upper and lower case, open script letters for washing and cleaning compound. Filed Apr. 25, 1945 by Sutho Suds Co., Indianapolis. Claims use since Aug. 1, 1942.

SILVERITE—This in upper case, reverse letters for metal polish. Filed May 30, 1945 by Victor Farb, Brooklyn. Claims use since April 14, 1944.

HEDGEROE—This in upper and lower case, bold script letters beneath a coat of arms for shampoo. Filed Apr. 27, 1945 by C. E. Hoffman Co., Dallas, Claims use since Feb. 15, 1945.

DEE-D-TEEN—This in upper and lower case, bold letters for agricultural chemicals having insecticidal properties. Filed by Pennsylvania Salt Manufacturing Co., Philadelphia. Claims use since Apr. 27, 1945.

VOLVAPE—This in large and small upper case, bold letters for germicide liniment. Filed May 25, 1945 by Fletcher Chemical Co., San Antonio, Tex. Claims use since Dec. 1944.

Nellie Gray—This in upper case, open letters for preparation for sterilizing and cleansing glassware. Filed May 28, 1945 by Gray and Gray, Venice, Calif. Claims use since May 5, 1945.

FLOWERY BANK—This in upper and lower case, bold letters for hair shampoo. Filed June 27, 1945 by Primrose House, Inc., New York. Člaims use since June 5, 1945.

CREMEPUFF—This in upper case, bold letters for shampoo. Filed June 29, 1945 by Associated Products, Inc., Chicago. Claims use since Dec. 1, 1944

ZET—This in upper case, open letters for shoe and leather polish. Filed Mar. 1, 1945 by Rit Products Corp., Chicago. Claims use since Sept. 1, 1919.

JOHN D. Jr.—This in upper case, extra bold letters beside the fanciful drawing of a boy for soap. Filed Apr. 30, 1945 by Great Stuff Products



ON THE SCREEN the beauty of performers like Jinx Falkenburg increases box office sales for the motion picture industry.

OVER THE COUNTER the beauty of this artfully designed Gift Package wins sales for Max Factor.

THE PACKAGES that dealers prefer to display, and which most attract consumers, are those that effectively "stage" a product. That's the success secret of a Package by

Ritchie. That's why—while solving practical problems of material, structure and cost—Ritchie always comes up with an outstandingly attractive, SELLING PACKAGE!

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* WAY TO A BETTER SELLING PACKAGE. The Ritchie way integrates art and artisanship—to give you a better selling package at a low unit cost. A package that quickly, unmistakably identifies, fully protects and conveniently dispenses your product. A practical, production-planned package—easy to fill or pack, easy to handle, to stack and display—but above all designed for eye-appeal, for quality-impression, for beauty that sells!

NEW YORK . DETROIT . LOS ANGELES . ST. LOUIS . MINNEAPOLIS

Corp., Chicago. Claims use since Jan. 11, 1921.

SUDSATION-This is upper case, extra bold, black letters for cleaning compounds. Filed June 8, 1945 by Scientific Supply Co., Denver. Claims use since Aug. 1, 1944.

V-O-This in upper case, bold shadow letters for soaps, spot removers, glass cleaning compounds and compounds for cleaning rubber mats. Filed June 22, 1945 by V-O Manufacturing Co., Glendale, Calif. Claims use since Nov. 15, 1940.

STANOX - This in upper case, extra bold, black letters for soap. Filed July 7, 1945 by John T. Stanley Co., New York. Claims use since July,

PETRA-This in upper case letters for pest repellent. Filed May 6, 1944 by Sparhawk Co., Sparhawk, N. Y. Claims use since Feb. 23, 1941.

METRO - This in upper case, inline, reverse letters, above the words "The Double-Duty Shampoo," for hair shampoo with insecticidal properties. Filed May 11, 1935 by Metropolitan Chemical Corp., Albany, N. Y. Claims use since Mar. 1, 1944.

CONSOLIDATED EXTERMINA-Tors-This in upper case, reverse letters on a shield for insecticides. Filed June 7, 1945 by Consolidated Exterminatiors, Inc., New York. Claims use since Feb. 15, 1944.

DAY-LITE DUST-This in upper case, outline letters for insecticides and fungicides. Filed by Sherwin-Williams Co., Cleveland. Claims use since Mar. 1, 1945.

Trade Marks Granted

417,219. Toilet powder. Filed by Procter & Gamble Co., Cincinnati, Apr. 23, 1945. Serial No. 482,506. Published July 31, 1945. Class 6.

417,282. Soap powder. Filed by Gamlen Chemical Co., San Francisco, Oct. 20, 1943. Serial No. 464,-266. Published Aug. 7, 1945. Class 4.

417,284. Solvent cleanser and detergent for floors. Filed by Walter G. Legge Co., New York, Mar. 23, 1944. Serial No. 468,576. Published Sept. 26, 1944. Class 4.

417,288. Brushless shave cream and shaving soap. Filed by Irene Blake Cosmetics, Inc., New York, May 29, 1944. Serial No. 470,751. Published Aug. 14, 1945. Class 4.

417,296. Liquid floor wax. Filed by Carsello Chemical Products, Chicago, Sept. 15, 1944. Serial No. 474,227. Published Aug. 7, 1945. Class 16.

417,308. Liquid glass cleaner. Filed by C-Z Chemical Co., Beloit, Wis., Feb. 14, 1945. Serial No. 479,-772. Published Aug. 7, 1945. Class 4.

417,312. Soap. Filed by Harold B. Woods, Los Angeles, Mar. 24, 1945. Serial No. 481,301. Published Aug. 7, 1945. Class 4.

417,317. Spot removing compound in pressed stick form. Filed by Duncan Mackenzie Co., New York, Apr. 3, 1945. Serial No. 481,672. Published Aug. 14, 1945. Class 4.

417,319. Soap. Filed by Parfait, Inc., Chicago, Apr. 9, 1945. Serial No. 481,903. Published Aug. 7, 1945. Class 4.

417,323. Hand and general household cleaner. Filed by Banite, Inc., Buffalo, N. Y., Apr. 13, 1945. Serial No. 482,086. Published Aug. 7, 1945. Class 4.

417,325. Toilet Soaps. Filed by Les Parfums de Dana, Inc., New York, Apr. 14, 1945. Serial No. 482,163. Published Aug. 7, 1945. Class 4.

417,326. Toilet soaps. Filed by Les Parfums de Dana, Inc., New York, Apr. 14, 1945. Serial No. 482,166. Published Aug. 14, 1945. Class 4.

417,417. Insecticides. Filed by H. A. Astlett & Co., New York, Apr. 7, 1945. Serial No. 469,104. Published Aug. 14, 1945. Class 6.

417,430. Antiseptic and deodorant preparation in powder form for treatment of athlete's foot. Filed by Fairfield Laboratories, Inc., Plainfield, N. J., Aug. 5, 1944. Serial No. 472,-974. Published Aug. 14, 1945. Class 6.

417,434. Shampoo. Filed by Procter & Gamble Co., Cincinnati, Oct. 10, 1944. Serial No. 475,164. Published Aug. 14, 1945. Class 6.

417,438. Preparation for athlete's foot. Filed by Kerodin Products Co., Chicago, Oct. 30, 1944. Serial No. 475,859. Published Aug. 21, 1945.

417,446. Shampoos. Filed by Maurice Handman, New York, Dec. 23, 1944. Serial No. 477,882. Published Aug. 14, 1945. Class 6.

417,457. Oil sludge emulsifier. Filed by Lanair Chemical Corp., Chicago, Feb. 3, 1945. Serial No. 479,-390. Published Aug. 7, 1945. Class 15.

417,483. Bubble bath preparation. Filed by Lassie Toiletries, Inc., New York, Apr. 14, 1945. Serial No. 482,161. Published Aug. 14, 1945. Class 6.

417,499. Antibacterial preparations. Filed by E. R. Squibb & Sons, New York. Serial No. 482,595. Published Aug. 14, 1945. Class 6.

417,515. Disinfectant, deodorant and cleaner. Filed by New England Chemical & Supply Co., Manchester, N. H., May 4, 1945. Serial No. 483,-013. Published Aug. 21, 1945. Class 6.

417,548. Solvents for degreasing metal. Filed by Midwestern Sales, Inc., New York, May 24, 1945. Serial No. 483,731. Published Aug. 21. 1945. Class 6.

417,594. Cleansing preparations. Filed by G. F. Brown Co., Philadelphia, Nov. 8, 1943. Serial No. 464-848. Published Aug. 21, 1945. Class 4.

417,595. Bath, hand and shaving soap, shaving cream and shampoo soap in cake or bar form. Filed by Lightfoot Schultz Co., New York, Mar. 1, 1944. Serial No. 467,893. Published Aug. 21, 1945. Class 4.

417,625. Metal polish. Filed by Boco Co., Cleveland, Apr. 7, 1945. Serial No. 481,831. Published Aug. 21, 1945. Class 4.

ALL PURPOSE SOAP

(From Page 43)

^{4.} Federal Specification P-S-611, Soap, Salt Water, October, 1930. 5. Army Service Forces, Office of

Quartermaster General Specification No. 100-100A, March 1944.

Bureau of 6. Navy Department, Ships Specification 51S46(INT), August 1944.

^{7.} Jay C. Harris, "Studies on Synthetic Detergents" Bulletin A.S.T.M.

thetic Detergents" Bulletin A.S.T.M.
No. 125, pp. 27-33.
8. Jay, C. Harris, "Studies on Synthetic Detergents" Soap and Sanitary
Chemicals, Vol. 19, No. 9, pp. 29-31.
9. L. Goldman, "Patch Tests with
Soap," Bulletin, U. Cincinnati Vol. 7,

pp. 90-92. 10. L. McDonald, U. S. Patent Appln.

Ser. Nos. 405,659 and 556,241.

The Hooker Quality Line Is a Good Line to Follow

You can't go wrong when you follow this line of quality. Your own products must meet rigid competitive requirements. The basic chemicals and intermediates you obtain from Hooker will insure their high quality. For over 35 years, manufacturers of soaps and sanitary chemicals have found that they can depend upon Hooker Chemicals.

An examination of the products listed below may suggest some of potential value to you. Their properties may be those of a material you will need to improve your regular products—or—here you may find one or more which will be worthy of consideration for a new development you have in mind.

Free experimental samples and technical data sheets will be promptly sent when requested on your business letterhead. Your inquiries will be welcomed and given careful consideration by our technical staff.

Product

(Chemical Formula Molecular Weight)

Benzoate of Soda-USP and Tech. C₆H₅COONa; 144.0

Benzoic Acid— USP and Tech. CoH5COOH; 199.1

Benzoyl Chloride (Benzenecarbonyl Chloride) C₀H₆COCl; 140.5

Cyclohexanol (Hexahydrophenol) C₆H₁₁OH; 100.1

Methyl Benzoate (Niobe Oil) CoHoCOOCHs: 136.1

Methyl Cyclohexanol (Hexahydro Cresol) CH₂C₆H₁₀OH; 114.1

Orthodichlorbenzene, Tech. (1:2 Dichlorbenzene) CaHaCla: 147

Sulfur Dichloride SCl₂: 103

Sulfur Monochloride

Description

(All Specific Gravities at 15.5°/15.5°C) White, odorless, crystalline solid.

White, odorless, crystalline solid.

Water clear liquid soluble in ether; reacts with alcohol and water. Sp. Gr. 1.219 ± .003. Boiling Point 198°C. Freezing Point, Min. −0.9°C.

Clear, colorless liquid with pleasant aromatic odor. Sp. Gr. 0.947. Boiling Range: High Grade, 158° to 162°C; Tech. Grade, 155° to 165°C.

Clear, colorless liquid with odor resembling oil of wintergreen. Sp. Gr. 1.0980. Boiling Range &C Max. including 199°C.

Slightly viscous straw colored, neutral liquid which becomes glasslike when cooled below room temperatures. A mixture of ortho-, meta-, and paraisomers. Sp. Gr. 0.924 ± .003. Boiling Range 155° to 180°C.

Clear, colorless liquid. Sp. Gr. 1.310 ± .005. Boiling Range 6°C Max. including 179°C

Dark brown or reddish liquid. Sp. Gr. 1.638 \pm .005. Decomposes above 40° C. 66% Min. Chlorine content.

Yellow to slightly reddish liquid. Sp Gr. 1,690 ± .005. Boiling Point 138°C 50% Min. Chlorine content. Suggested Uses

Preservative in pharmaceutical and medicinal preparations, in tooth pastes and powders.

Ingredient of cosmetic creams, lotions and other pharmaceutical preparations; antiseptics, dentifrices. Manufacture perfumes and pharmaceuticals.

Highly active source of benzoyl group. Manufacture of benzophenone, benzyl benzoates, synthetic perfumes, and pharmaceuticals.

In manufacture of disinfectants, germicides and insecticides, perfume in soaps, solvent.

Deodorizing material for soaps and in manufacture of perfumes.

Perfume in soaps and to incorporate solvents and phenolic insecticides; solvent.

Insecticide, solvent for natural and synthetic gums, resins, tars, grease, oil, fats. Insecticide for: termites, powderpost beetles, flies, bedbugs, roaches, wood borers, midges, barnacles, etc.

Chlorinating agent, in manufacture of organic acid anhydrides and in organic syntheses.

Manufacture of insecticides, linseed oil substitutes, dye intermediates, pharmaceuticals, organic acid chlorides. Solvent for sulfur.



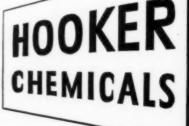
HOOKER ELECTROCHEMICAL COMPANY

Buffalo Ave. and Union St.

Niagara Falls, New York

New York, N. Y. . Wilmington, Calif. . Tacoma, Wash.

Caustic Soda Bleaching Powder Paradichlorbenzene Sodium Sulfhydrate Muriatic Acid Ferric Chloride Chlorine Sodium Sulfide



-

RAW MATERIAL MARKETS

As of November 19, 1945

RRIVALS of coconut oil and copra in the United States from the Philippines have been disappointing thus far. It was hoped that sufficiently large quantities of coconut oil would be available for soap making in the fourth quarter of 1945 to enable some liberalization of the soap maker's fats and oils quota. However, earlier predictions concerning the coconut oil situation seem to have been optimistic, and it now appears that the soaper will get no relief before the first quarter of 1946, if by then. A spokesman for the Department of Agriculture has expressed himself as "hopeful" that imports of coconut oil from Pacific areas, expected during the first half of 1946, will soon become sufficiently certain to permit some relaxation of restrictions on soap making in the early part of 1946.

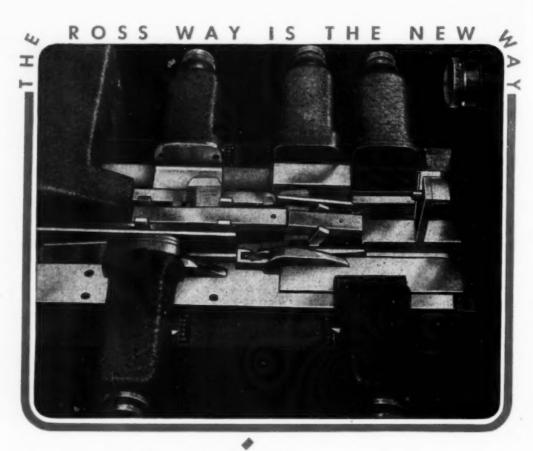
Lard Stocks Drop

Another factor that would seem to militate against any further liberalization of the soap maker's fats and oil quotas this year is the lard situation. From Chicago comes word that even though there has been a reduction in the ration point value of lard and fats, the supply of lard shows little signs of increasing, in spite of the fact that there has been a larger run of spring pigs. Chicago stocks of lard in cold storage on Nov. 1 amounted to 5,244,000 pounds, a decrease of 1,325,000 pounds in the month of October. A month earlier, stocks aggregated 16,573,000 pounds and a year earlier amounted to 26,828,000 pounds. What business is being transacted is

all done at ceiling prices with offerings being very light. Packers indicate that production of lard at present is inadequate to take care of the demand and expect that it will be early next year before relief will be experienced.

Despite increased production of domestic fats and oils in 1946, as compared with 1945, continuing strong demands for oils and fats will tend to keep prices at ceiling levels. If ceilings were removed in 1946, according to the U. S. Department of Agriculture, prices for some fats and oils would advance. Despite high prices in prospect for oils, prices of domestic oilseeds may average moderately lower in 1946-47 than in the current marketing year, partly because of lower prices in prospect for oilseed meal in





SPEEDIER ADJUSTING..



Precision built for speedy, accurate adjusting, when changing carton sizes. No mechanical means used to form and tuck flaps in cartons. Note scale with indicator for precision adjusting. Charts supplied for accurate recording of adjustments when resetting machine for same job. Changes can be made in from ten to fifteen minutes. It is fully automatic for setting up and tucking the end of folding cartons.

The same features are available on the ROSS fully automatic machine (loading and closing both ends of either tuck or sealed carton.)

PRECISION PARTS • SELF OILING • DIAL CONTROL VERSATILE ADJUSTABILITY • MASTER SPEEDRANGER

A. H. ROSS

PACKAGING MACHINERY

LUDLOW • KENTUCKY

late 1946 and 1947. Lard prices may decline in mid-1947 as a result of increased competition from lower-priced fats (notably tropical oils and whale oil) in European markets, a Department of Agriculture forecast states. If lard prices should drop, there would be a tendency on the part of other fats and oils in the United States to reflect such a decline. But, no major decline in fats and oils prices is likely to take place in 1947, unless a general business recession occurs, as in 1921, we are told by the Department of Agriculture.

In a summary of the essential oils and aromatic chemicals fields, Fritzsche Bros., Inc., New York, pointed out recently that "continued labor shortages and difficulty in replacing worn out equipment are responsible for the persistent shortage of many aromatic chemicals" that it was hoped might be rather freely available at this time. In addition, it was pointed out, the "lack of shipping space and strikes in New York and other ports have withheld arrivals of certain imported oils that have been long awaited,

"While some materials" in the essential oils and aromatic chemicals fields "are beginning to be more plentiful, the supply situation is still beclouded and holds disappointment for many users" the report states. Oil of bergamot is available in reasonable quantities from this source. Although its cost at source is well above present domestic selling prices, the U. S. government has made arrangements for further importation of the oil purchased some time ago and at a cost to the importer which permits sales at current levels. The price of oil of

vetiver Reunion has advanced in the face of brisk demand and higher quotations from the source.

As a result of the removal of ceiling prices on carnauba wax, several weeks ago, conditions in that market are in quite a confused state. Under heavy pressure of demand, prices were reported being quoted 40 to 45 cents above former ceiling levels. In addition, the activity in carnauba was reflected in ouricury wax in which a sizeable volume of business was booked for shipment and at increased prices.

In the opinion of one rosin producer, Ernest E. Holdman, of Newport Industries, Inc., New York, the rosin situation is not as bad as it was made to appear by Wells Martin, Chief of the Protective Coatings Branch of the W.P.B., in his report on rosin, published in the November issue of SOAP. In the first place, Mr. Holdman points out, W.P.B. figures on 1944 distribution of rosin included lend lease and other exports, which he claimed the W.P.B. figures did not specifically indicate. Mr. Holdman further objects to failure to include figures on "B" rosin in W.P.B. estimates of current rosin supplies. Finally, he wonders why rosin quotas and inventory maximums were recently increased, if there is the critical rosin shortage the W.P.B. appears to think there is.





Here's an interesting booklet you should have. It's crammed full of valuable data on the decolorizing, deodorizing and purifying of oils, fats and related products.

It was prepared with the intention of giving you factual information in a concise manner. It discusses the technology of applying activated carbon; what it does and how it works—in eight "easy to read" chapters.

Send for this valuable booklet today. Write our nearest office. You will receive it by return mail.



CLEVELAND 14, OHIO

PRODUCTION SECTION

Soap Perfuming

ERELY to choose a floral compound with a pleasant smell is uneconomical in perfuming toilet soap and may lead to very disappointing results. A base should first be selected which combines a definite odor value with a known stability in soap, and to this base other ingredients should be added to build a reliable compound. A residue-contain-

ing compound is not economical. An almost universal base of exceptional value for every type of soap consists of 10 per cent of ionone, 5 of linalol and 85 per cent of terpineol super. Terpineol is the only synthetic possessing the necessary resistance to alkali. The following formula with the above base will provide a compound suitable for an inexpensive toilet soap.

| Natural or Synthetic | % | Volatility | Stability |
|-------------------------|-----|----------------|-----------|
| Benzyl acetate, pure | 5.0 | High | Good |
| Isobutyl phenylacetate | | Volatile | Stable |
| Isobutyl benzoate | | Medium lasting | Stable |
| Anisic aldehyde, pure | | Medium lasting | Weakens |
| Geraniol | | Medium lasting | Stable |
| Gerangi acetate | | Volatile | Stable |
| Hydroxycitronellal | | Long lasting | Medium |
| Eugenol | | Medium | Stable |
| Santal E.I. | | Long lasting | Stable |
| Methyl nonyl ketone | | Medium | Stable |
| Bromostyrol | | Volatile | Stable |
| Paramethyl acetophenone | | Long lasting | Stable |
| Musk ketone | | Long lasting | Stable |
| Benzoin resin sol 50% | | Long lasting | Good |
| Patchouli | | Long lasting | Stable |
| Cedarwood | | Medium lasting | Fair |
| Fixative base as above. | | Long lasting | Stable |

Natural oils and synthetics are judiciously combined in this formula, which is capable of many variations. It is wise to insure that the chosen synthetics are resistant to alkaline reaction. As far as possible freshly prepared soap compounds should be used in processing. Long-standing compounds cause variations in the final product, such as discoloration and changes in odor.

For high-class toilet soaps, absolutes and concretes are the best compounds. The results obtained are excellent and the fragrance imparted is lasting. The high initial cost causes many manufacturers to feel reluctant to consider these compounds, but ex-

periments show that the use of only 0.25 per cent of natural jasmin absolute or concrete gives a stronger and more lasting odor than 10 per cent of synthetic jasmin. In normal times when stable prices rule and raw materials are plentiful, the advantages of the expensive compounds deserve consideration for high quality soaps. The following formula illustrates the use of either absolutes or concretes.

| Compound | % |
|--|---|
| Jasmin absolute or concrete Lavender absolute Barreme | 5 |
| Ylang ylang absolute | |
| Resinoide olibanum | |
| Resinoide vetiver | 3 |
| Resinoide orris root | |
| Resinoide styrax | 7 |
| Santal E.I. | 5 |

| Patchouli singapour | 2 |
|------------------------|------|
| Cedarwood | |
| Bois de rose | 7.5 |
| Benzyl acetate, pure | 7.5 |
| Citronellol | 10 |
| Petigrain, terpeneless | 5 |
| Methyl heptine carb | |
| Phenyl propyl alcohol | |
| Dimethyl hydroquinone | 2 |
| Musk ketone | |
| Terpineol base | 21.5 |
| | |

Two to six ounces added to a hundredweight of soap base produces a soap with a lasting fragrance. J. Bather, Manufacturing Chemist 16, 308-10 (1945).

Liquid Soap Standard

Specifications for a minimum standard for liquid toilet soap have been recommended to the British Standards Institution by the Soap Makers' Association. The soap is to be in the form of a clear solution at 5° C., shall show no sign of separation, and shall be free from foreign matter and impurities. Samples taken at random must comply with the following additional regulations.

- (a) The material must contain not less than 15 per cent by weight of fatty acids.
- (b) The degree of alkalinity should not exceed 0.04 per cent, calculated as potassium monoxide.
- (c) When applied to wet hands the material must form a satisfactory lather quickly.
- (d) The soap must have no injurious effect on the skin and must produce no objectionable smell or tacky feeling in use.
- (e) When stored in its original sealed container under normal conditions for a period of six months, the soap must show no signs of gelling or

KIEFER SHOPS ARE "RECONVERTED"

The Great Endweld

Fills tubes perfectly, so is them perfectly. Not only increased production but self-liquidating cost, by savings in length of the metal tubes.

The GREAT ENDWELD is truly in a class by itself!

You have many filling and packaging problems. The Karl Kiefer Machine Co. must have the solution.

"Must"! For more than fifty years, others in your field have been served by our machines for quicker and more economical cleaning, filling, closing and conveying of bottles, jars and tins.

Right now is the time to strive for new leadership! You face the task . . . we can help . . . let's get together!

> Completely automatic, semiautomatic, hand-fed equipment to clean, fill, close and convey jars, bottles, tins, collapsible tubes.

Also
Filters • Pumps • Percolators

The Karl Kiefer Machine Co.

CINCINNATI, U. S. A.

New York . . Boston . . Chicago . . San Francisco . . Seattle . . Los Angeles . . London, England

other deterioration. It must retain its original perfume, if any.

(f) There shall be no "seeding out" of solid soap or deposit of solid matter after standing for 18 hours at 0° C.

No liquid toilet soap shall be described as concentrated unless it contains a minimum of 25 per cent by weight.

Analytical methods are described to cover some of these points.

Lather Determination

To determine the amount of lather, a simple quantitative method is described. A stoppered 500 ml. graduated cylinder is thoroughly washed out with distilled water and allowed to drain for 5 minutes. The liquid soap is diluted with 5 or 10 times its volume of distilled water, and 20 ml. placed in a cylinder, which is then immersed to the neck for 15 minutes in a constant temperature bath at 20° C. After replacement of the stopper, the cylinder is shaken vigorously for 1 minute and the volume of foam at once determined. The volume of foam is again determined after replacing in the bath for 5 minutes at 20° C.

The amount of lather produced by this method, using a solution consisting of 1 part of liquid soap diluted with 5 times its volume of distilled water, shall be not less than 12 times the volume of the solution used, and after standing for 5 minutes, shall not be less than 9 times the volume of the solution taken for the test. Manufacturing Chemist 16, 323 (1945).

Solvent Extraction of Oils

The boiling points and densities of mixtures of cottonseed and of peanut oils with commercial hexane are reported. These are useful in the design of vacuum evaporators and strippers, and for control operations involving temperature, time of heating, and concentration of oil-solvent mixtures, in order to prevent fixation of objectionable coloring matter, or other deteriorative heat effects. Boilingpoint data are determined at various concentrations of crude cottonseed oil and crude peanut oil, over a range of pressures from 160 to 650 mm. absolute in commercial hexane. These data

Geraniol Esters

The cheapest and most abundant source of geraniol is citronella. Under certain conditions the geraniol can be distilled from the oil and esters formed which have the possibility of replacing many of the more costly perfume bases. Citronella oil is obtained from Ceylon or from Java oil. The two oils differ in composition as follows:

| Ceylon Oil | % |
|---------------------|--------------|
| Geraniol | 30-40 |
| Citronellol | |
| 1-Borneol | 1-2 |
| Methyl eugenol | 7-10 |
| Nerol | Frace |
| Farnesol and ester0 | .2-0,3 |
| Limonene | Trace |
| Dipentene camphene | Crace |
| Java Oil | % |
| Geraniol | 6-40 |
| Citronellol4 | 10-45 |
| Citronellal | 6-8 |
| Methyl eugenol | ip to 1 |
| Citral | 2 |

Java oil gives a better quality of geraniol and the latter is easier to isolate. Geraniol was isolated and the following esters prepared: Geraniol acetate, benzoate, salycilate, cinnamate, laurate, oleate, phenyl acetate, stearate and nitrobenzoate. Geraniol cinnamate has an odor resembling that of eau-de-cologne. It may be used as a prefixative; a small quantity completely deodorizes alcohol in two hours. Geranyl phenyl acetate can be used as a good fixative with an odor resembling that of ylang ylang. Geraniol laurate has a sweet honey-like odor. Geraniol stearate has a sweet fatty odor intermediate between alcohol and acid and may be used in soap perfumes. U. N. Guha Roy and M. N. Goswami, Indian Soap J. 10, 57-60 (1945).

Physical properties of the oils are listed below:

| Specific gravity | 0.905-0.920 | 0.882 —2 to —30 |
|-----------------------------|-------------------------|--------------------|
| Optical rotation | 0 to —20 1.475-1.490 | 1.464 to 1.472 |
| Acetyl-forming constituents | 55-60 | 86-94.9 |

should be of value in the further development of the technology of the solvent extraction of vegetable oils. Observations of the effect of agitation in establishing equilibrium conditions of the oil-solvent mixtures are noted. E. F. Pollard, H. L. E. Vix, and E. A. Gastrock. *Ind. Eng. Chem.* 37, 1022-6 (1945).

Triglyceride Rearrangement

Fatty acid radicals in triglyceride mixtures, with or without the presence of a dissimilar free fatty acid, are interchanged to form fats of altered physical properties, in the presence of 0.25-10 per cent of water at temperatures above 200° in a closed vessel. The rearranged fat mixture has a lower melting point than the original. E. W. Eckey, to Procter & Gamble Co. U. S. Patent No. 2,378,005.

Solvent Extraction

Oils are extracted batchwise from seeds with a mixture of 70-80 per cent ethyl alcohol and 30-20 per cent isopropyl alcohol by volume, at atmospheric pressure and about 170° F. The extract is cooled, and 85 per cent of the oil separates by gravity in 16-20 hours. P. A. Singer and H. J. Deobald, to Allied Mills, Inc. U. S. Patent No. 2,377,975.

Antioxidants

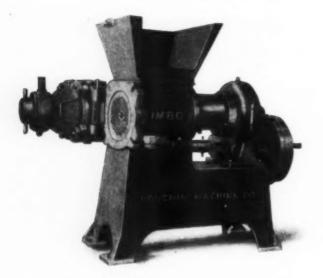
Excellent antioxidants for edible fats and oils are monoesters obtained from the reaction of a saturated fatty acid with a compound of the ascorbic acid series. P. A. Wells and R. W. Riemenschneider, to the Secretary of Agriculture of the U. S. U. S. Patent No. 2,368,435.

Hard Wax Substitutes

Hard wax substitutes are prepared by condensing at 125-250° C. one-third to two-thirds molecules of a hydrogenated castor oil having an iodine value of 11 or less, with one molecule of an aliphatic polyamine such as diethylene triamine. The glycerine and partial glycerides resulting as by-products are permitted to remain in the product. National Oil Products Co. British Patent No. 558,-854.

A New and More Powerful HOUCHIN PLODDER

For manufacturers who must process excessively stiff materials, this is a plodder with a heavier drive. The shaft is of alloy steel and the gears huskier than in plodders heretofore available.



This more powerful plodder was originally designed and built by Houchin for the handling of Army-Navy Soap that changes consistency during processing, from semi-liquid to concrete hardness, four times within twenty minutes.

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Cutting Tables

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etc.

HOUCHIN

MACHINERY COMPANY, INC.

Fifth and Van Winkle Avenues

Hawthorne

New Jersey

PRODUCTION

By DR. E. G. THOMSSEN, PH.D.

ISTORIANS will chronicle 1945 as one of the momentous years in world history. It is very probable that future generations will read only the names of those who monopolized the headlines. Those who planned and produced the supplies for the actual users will receive but minor recognition. There is, however, a lot of unwritten glory hidden away among the talented scientific and production brains that brought us the victories in two theatres of war. No other nation but ours has ever been able simultaneously to fight and win two wars on battle areas thousands of miles from our shores. It is generally accepted that the reason this was possible was that we have the greatest productive capacity of any existing nation.

Our retrospect in most cases is far better than our foresight. We can obtain some advantage here by forecasting future trends on the basis of past performances. This is particularly true in planning future production. Yet strange to say, a majority of concerns overlook this fact. Such business details as sales, costs, advertising, purchasing and research have in most cases due attention. Planning production ahead properly, however, is slighted and is often the cause of considerable friction between departments and department heads of a business. At the threshold of a new year is a good time to consider the importance of planning production ahead.

There is probably no more aggravating condition in running a business than to have gone to the effort of



selling goods and then finding they are not ready for shipment and probably cannot be produced for months ahead because of lack of materials to manufacture them. We got rather used to this state of affairs during the war when raw materials were scarce, under allocation or cut off. As supply conditions are now improving, however, customers will expect normal service again and business executives will expect better results from the production end. To obtain such results over night is not a simple matter. It requires co-ordination of several departments of business rather than putting the entire onus on the men in the plant. There are certain aids in carrying out proper planning which may be followed successfully.

The crux of proper planning of production lies in proposing a future procedure of operations upon records of what has gone before. In other words, it is necessary to keep records

of sales volume particularly so as to know what to produce over a similar period in the year ahead. The best plan to follow is to break the year down into quarters. If conditions permit, it is advisable to keep on hand a three months' supply of raw materials and a three months' supply of finished goods. These quantities are determined by the sales' volume of the previous year's same quarter. The variable conditions which may alter this procedure are items like capital, stability of raw materials or finished goods, general economic conditions and advertising or sales campaigns. During special sales campaigns it is particularly important that production volume be carefully worked out and that the responsibility for the quantity of goods produced be placed in the right direction. This is the sales department. They should be required to estimate as accurately as possible and as far ahead what amount they will sell. If this is not done, special sales' campaigns are apt to be costly.

Another method of planning production ahead is by the maximum and minimum inventory scheme. This in many cases is simpler than that mentioned above. By this system, the amount of goods to be produced is determined by the stock on hand. Bin tags or other stock record devices are used. Periodic additions or deductions are made as the stock is made up or shipped out. When the stock pile reaches the minimum or maximum quantity, determined as being safe in view of past records, manufacture or cessation of production are ordered and thus the danger of overstocking or running out of goods is controlled. This method is preferred by many plants and gives good results, though not as satisfactory in some lines of business as the first one described.

If your business does not include a planning division, it will certainly pay to start one. Plan now for the installation of a planning department in your business for the new year.

Package Machinery

Anyone having a problem that involves packaging machinery for weighing, filling, measuring or carton

YOU CAN'T AFFORD TO SAME



DRYING EQUIPMENT

If there is one place in your production line that you cannot afford to gamble, it is in the selection of your drying equipment. First—by the time soap reaches the drying stage it has already passed through a good deal of preliminary processing and represents quite an investment. When you gamble with a dryer—you are gambling with your product which is already well along the way to its finished state. Second—the dryer must be the ideal link between preliminary and subsequent processing. The quality of the flakes produced by the dryer has a most important bearing on the ultimate quality of the finished soap. That is

why many of America's leading soap manufacturers rely on the Proctor Automatic Flake Soap System. It is a dependable, high capacity, automatic system that can be relied upon to produce uniformly dried flakes of unvarying thickness, in quantities to meet individual production requirements. Every factor which affects flake thickness or drying, can be accurately controlled. The system can be "tailor made" to suit a given plant's needs. The all around efficiency made possible by this system, coupled with its absolutely dependable performance, assures perfect flakes and production costs that are incredibly low. Write for details today.



PROCTOR & SCHWARTZ . INC . PHILADELPHIA 20 . PA.

sealing should not overlook Triangle machinery. Included in their line is equipment ranging from the smallest of fillers up to their fully equipped automatic "Elec-Tri-Line" systems that package lye in 16 ounce cans, for example, at a rate of 50 per minute. The personnel of this company is comprised of men with long and varied experience in the packagaing machinery line. Most of them have worked together over a period of ten years. In this time they have designed and built over 50 basic models of machines for packaging every conceivable kind of dry product. These include a most complete line of volumetric fillers, simplified package machinery and the electrically vibrated feed plate principle. They have also developed a line of semi-automatic carton sealers, simple in operation, low in cost and easy to operate.

Triangle's illustrated catalogs explain the advantages of their equipment. Actual illustrations of the machinery operating in well known soap and chemical plants are given. Their literature is available by writing to them care of Triangle Packaging Machinery Co., Chicago, Ill.

Business Engineering

The George S. May Company with officers in all principal cities has sent us their rather elaborate prospectus on business engineering. This according to their definition is "the science of determining the proper physical, personnel and financial requirements of any business venture, together with their correlation and coordination into a profitable operating whole." As this company has shown a tremendous increase in business since 1925, they have a service of interest to industries. On the operating end of a business, their service includes an analysis of operating policies, analysis of the operating organization, a personnel program, full analysis of operating facilities and coordination and control of production. Men on the operating ends of business will find what they have to say in this book under these headings, interesting reading.

Improved Soap Plodder

In the making of milled toilet soap, the plodder determines to a very

large extent the ultimate appearance and wearing quality of the finished cake. If defective plodding occurs, then the previous operations are practically of no account even though they may have been carefully carried out. In a circular sent us, J. M. Lehmann, Inc., New York City, point out the seven benefits derived from using their soap plodder. These are claimed to be maximum density of soap, a design that ensures a properly regulated feed, effective cooling by use of an efficient water jacket, proper die head heating by electricity or steam if desired, improved compression worm made from durable non-contaminating, light weight alloy, greater efficiency due to elimination of needless driving parts and economy in floor space due to drive arrangements. The plodder is built with 6, 8, 10, 12 and 14 inch worms and has a capacity of from 330 to 5000 lbs. per hour, using 2 to 30 H.P. The machine is of streamlined

Silent Water Heater

To heat water with an open steam pipe, is a noisy, inconvenient way. Hot water is an essential in almost every plant and often a problem. Emil E. Lungivitz of Plainfield, N. J. offers a clever silent heater with various sized steam inlet from 1 in. to 3 in. that operate at any steam pressure. This piece of equipment suppresses noise and vibrations, gives the maximum delivery of steam for heating and prevents scouring action of open steam. Anyone with a hot water problem might find the answer in this device.

Pebble Mills

For a number of years, Patterson Foundry Machine Company of East Liverpool, Ohio, have featured the "Porox" (porcelain) lining of their pebble mills. Recently we received an announcement from them re their "Berylite," which is a white synthetic product half again as reisistant to abrasives as "Porox." The balls of the mill also made out of this patented substances are 50 per cent heavier than "Porox." "Berylite" is used in the new high speed grinding mill they are now marketing.

Since 1936 Patterson have sought a new ceramic which would be heavier and more wear resistant than any existing material of this nature. It was not until 1941 that, after trying out a variety of liners, "Berylite" was first produced. It is said to consist of raw materials that have never before been used for this purpose.

Patterson not only make pebble mills but also build a line of other processing equipment including particularly agitating and mixing machinery of every known type.

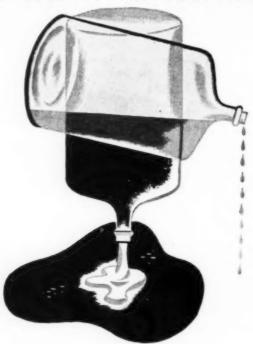
Compressors and Vacuum Pumps

The Allis-Chalmers Company of Milwaukee, make a general line of equipment such as is used by practically every industry, as well as in agriculture. Their name is famous on motors, drives, pumps, compressors and many other types of machinery. Among this varied type of equipment their "Ro-Flo" compressors and vacuum pumps merit special mention. These comprise a variety of 15 different sized rotary compressors and 12 rotary vacuum pumps. The "Ro-Flo" consists of a rotary pump of the sliding vane type for either compression or vacuum. By this construction, a rotor fitted with blades which move freely and radically in and out of longitudinal slots, revolves with an axis that is smaller than the water jacketed cylinder inside which it is located. Thus the air is trapped in a series of longitudinal spaces as it is compressed.

The advantages claimed for these pumps are economy in floor space, lighter foundations, easier money saving installations, absence of vibrations, no pulsations, direct connected motors, economy in labor costs and saving in maintenance.

Surface-tension Study

The change of surface tension with time for a solution of a non-electrolyte such as saponin is explained as due to an autocatalytic reaction between molecules already sorbed upon the surface, and molecules captured by them from a layer just underneath. The data are found to be in general conformity with such an explanation. Sydney Ross. J. Phys. Chem. 49, 377-86 (1945).



working with water

"through thick and thin"

answering the problem of water thickeners . . .

Water frequently presents thickening problems when used in making products sold in solution.

Often these products must not only be thickened—sometimes they must also be thinned before use. In both operations, Methocel (water-soluble Dow Methylcellulose) easily meets requirements. Methocel works well with water "through thick and thin."

Take the manufacture of germicidal solutions as an example. For many applications these solutions must be thickened so as to be applied most effectively to a specified area or substance. Germicidal solutions are concentrated, however, and often must be diluted with water to the required strength. Methocel thickens germicidal solutions so that they do not pour too freely. This makes exact dilution easy, so that the germicides are not wasted when used.

This is only one example of an easy and effective application of Methocel, a water-soluble cellulose ether of exceptional purity and uniformity. Methocel can serve you well—as a dispersing, thickening, emulsifying, binding and coating agent. It may be the answer to many of your product problems. You can find out by asking Dow for complete information.

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Methocel

Water Soluble Dow Methylcellulose



PRODUCTS AND PROCESSES

Detergents from Alcohols

Individual primary alcohols of high molecular weight were prepared by a process of continuous hydrogenation of compound esters of fatty acids in vertical columns filled with small lumps of catalyst comprising a copper-aluminum alloy containing 34 per cent of copper and 66 per cent of aluminum. This was carried out under high pressure. The alcohols were used for the preparation of synthetic detergents. A. A. Bag and T. P. Egupov. Uspekki Khim. 14, No. 1, 56-64 (1945); through Chem. Abs.

Foam Baths

Foam is produced by chemical reaction between aluminum sulfate and sodium bicarbonate. A typical mixture contains hydrated aluminum sulfate 1718 grams, sodium bicarbonate 1300 grams, aluminum oxide as a fine powder 195 grams, and saponin 30 grams. Add 373 grams of the mixture to 30 gallons of warm water. L. Lowenstein, vested in Alien Property Custodian. U. S. Patent No. 2,382,732.

Nonfogging Agent

Sheet materials composed of cellulose derivatives such as safety goggles, etc., are rendered nonfogging by treating their surface with a solution of an organic wetting agent in an organic solvent. A suitable wetting agent is one of the "Aerosols" such as dioctyl sodium sulfosuccinate. E. Schweizer, to Celanese Corp. of America. U. S. Patent No. 2,365,297.

Tripolyphosphate

A washing agent consists of sodium tripolyphosphate obtained from sodium trimetaphosphate by dissolving the latter in a caustic soda solution, using two mols of sodium hydroxide to one of trimetaphosphate. For use as a washing aid trimetaphosphate does not have to be converted to tripolyphosphate beforehand, but can be mixed with an alkaline substance in such a quantity that when the mixture

is dissolved the pH would be at least 8.5. G. B. Hatch. U. S. Patent No. 2,365,190.

Branched-chain Sulfonates

Olefins containing 2 alkyl groups and a double bond on the same carbon are sulfonated without saturating the double bond. The preferred sulfonation agent is dioxane sulfotrioxide. The reaction is carried out in a solvent which dissolves both dioxane and the olefine but does not react with the sulfonating agent. The unsaturated sulfonic acids produced may be condensed with suitable aromatic compounds to yield surface-active substances which are good suds producers. C. M. Suter, to The Procter & Gamble Co. U. S. Patent No. 2,365,783.

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Detergents in Canning

A froth flotation method has been adapted to canning peas. The peas are separated from nightshade berries and waste by passing the peas through a purified mineral oil emulsion stabilized by sodium lauryl sulfate. The degree of separation was dependent on the amount of detergent added. No flavor or aroma due to the emulsion could be detected in the finished canned product. The oil residue was estimated at less than 10 ppm. A. M. Neubert and M. K. Veldhuis. Food Industries 17, 494-7 (1945).

New Phosphate Water Softener

By slowly cooling the melt of 28 parts of sodium metaphosphate and 72 parts of tetrasodium pyrophosphate, there is formed a crystalline polyphosphate, sodium tripolyphosphate, Na₅P₃O₁₀. This is nondeliquescent and water-soluble, and softens water by forming slightly ionized complexes containing calcium and magnesium. About 1.2 pounds of the tripolyphosphate softens against soap a quantity of hard water containing 1,000 grains of hardness. More tripolyphosphate than hexametaphosphate is needed for the same degree of calcium sequestra-

tion, but the tripolyphosphate forms an alkaline solution of about pH 9.8, and therefore does not decrease the pH of soap solutions greatly. It also shows greater stability in hot solutions. It is suitable for use with strong alkalies or soap for mechanical cleansing processes. H. A. Jackson, to Hall Laboratories, Inc. U. S. Patent No. 2,374,100.

Soap Nigre Treatment

Soap nigre is purified by adding a high fatty acid such as coconut-oil acids, to neutralize the free alkali of the nigre. Insoluble impurities are then removed from the treated nigre by centrifugation. The Sharples Corp. British Patent No. 559,076.

Irish Moss as Wetting Agent

The aqueous extract from Irish moss is useful as a wetting agent and dispersing agent. The moss obtained from sea rock is dried, cleansed of dirt and sand, and boiled for 30 minutes in water. A preservative has to be added to stabilize the material. G. W. Stoyle. U. S. Patent 2,375,259.

Dispersing Agents from Rosin

Wetting and dispersing agents may be obtained by hydrogenating derivatives of the condensation products of natural rosin, such as gum or wood rosin, or the acids obtained from them, with an aldehyde in the presence of an active hydrogenation catalyst. The rosin nucleus should be at least 50 per cent hydrogen-saturated. After hydrogenation the product is hydrolyzed.

For example, 340 parts of gum rosin in 200 parts of acetic acid are refluxed for 6 hours with 35 parts of paraformaldehyde. The product is cooled, dissolved in ether and washed with water until free from acid. The ether solution is dried over calcium sulfate, the solvent removed and the liquid residue sparged with nitrogen gas for a half hour. The yield is quantitative. The product has an acid number of 137.5, saponification number of 268, and melting point of 80° C. E. A. Bried, to Hercules Powder Co. U. S. Patent No. 2,383,289.



Like the farmer — who only reaps what he sows if his timing is right — businessmen must NOW plan for the future as never before.

Now that the war is over there will be an urgent need for new machines — both to replace wornout equipment and for expansion — and for a time the supply will be limited.

So don't wait to make your needs known. We'll welcome the opportunity to sit down with you . . . NOW is the time to discuss your requirements with a Lehmann Engineer.





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U.S. ROTARY VACUUM FILLERS are being used most successfully and efficiently in filling liquid Bleaches, Disinfectants, Germicides, etc., into containers. They are a high speed filling machine for handling free flowing liquids — light, heavy or foamy. Tubes and contact parts are built of materials that prevent contamination and resist corrosive action.



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Speeds are variable and range from 40 to 130 containers per minute, depending upon the number of tubes on the machine and size of containers being filled. U. S. Rotary Fillers are furnished in three sizes.

We are designers and builders of hand operated, semiautomatic, fully automatic and high speed container Bottling and Packaging Equipment.

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NEW PATENTS

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Complete copies of any patents or trade-mark registration reported below may be obtained by sending 25c for each copy desired to Lancaster, Allwine & Rommel. Any inquiries relating to Patent or Trade-Mark Law will also be freely answered by these attorneys.

No. 2,385,928, Water Softening and Washing Product and Method of Preparing Same, patented October 2, 1945 by Leonard Mettes, Chicago. The method of preparing a water-soluble product which comprises heating a mixture of crystalline trisodium phosphate and phosphorus pentoxide, in a molal ratio of from approximately two to approximately three mols of crystalline trisodium phosphate to one mol of phosphorus pentoxide, at a reaction temperature not substantially below 300 degrees C. but below the temperature of disintegration of the desired reaction product for a period of time sufficient to substantially complete the reaction.

No. 2,385,929, Water Softening and Washing Product and Method of Preparing Same, patented October 2, 1945 by Leonard Meites, Chicago. The method of preparing a water-soluble compound which comprises heating a mixture of crystalline trisodium phosphate and monosodium dihydrogen phosphate, in a molal ratio of from approximately one to approximately two mols of crystalline trisodium phosphate to two mols of monosodium dihydrogen phosphate, at a reaction temperature not substantially below 300 degrees C. but below the temperature of disintegration of the desired reaction product for a period of time sufficient to substantially complete the reaction.

No. 2,386,066. Glass Cleaner, patented October 2, 1945 by Raymond M. Schlabach, Canton, Ohio. The method of making a glass cleaner and the like, including the steps of treating kraft paper with an equeous solution

containing from 75 to 115 cc. glycerine and 150 gms. powdered silica per liter of water, and then drying the paper to evaporate the water and form a treated paper carrying glycerine and silica in the approximate amount of 15 per cent to 20 per cent by weight of untreated paper and in the approximate ratio of from 2 to 3 to equal parts by weight of glycerine and silica.

No. 2,385,106, Detergent Composition, patented October 2, 1945 by Wilmer C. Gangloff, Cincinnati, assignor to The Drackett Co., Cincinnati. A detergent composition for cleaning polished surfaces of glass, said composition comprising from about 5 per cent to about 30 per cent of 2-methyl-2,4-pentane diol, approximately 0.1 per cent of a commercial wetting agent of the alkylated sulphonate type, and the balance predominantly water.

No. 2,386,492, Insecticide, patented October 9, 1945 by Menahem Merlub-Sobel, Rehway, N. J., assignor to Virginia-Carolina Chemical Corporation, Richmond, Va., a corporation of Virginia. An insecticide comprising an emulsion including an external phase of hydrocarbon oil and an internal phase containing in solution a compound selected from the group consisting of hydrofluoric acid, hydrofluosilicic acid; and mannide monooleate as a stabilizer of the emulsion.

No. 2,386,779, Insecticidal Compositions, patented October 16, 1945 by Gerald H. Coleman, Wesley D. Schroeder, and Gerald A. Griess, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich. An insecticidal composition comprising a product selected from the class consisting of the extracts of pyrethrin- and rotenone-bearing plants and as an added toxicant an amide having the formula:

wherein R and R₁ each represents an alkyl radical containing from 1 to 4 carbon atoms, inclusive, and R₂ represents an aryl radical.

No. 2,386,789, Cleaning Composition, patented October 16, 1945 by George W. Gregg, South Bend, Ind., assignor to Bendix Aviation Corporation, South Bend, Ind. In a stratified surface cleaner for cleaning relatively hard materials, the combination of the following stratifying materials; a solvent comprising one of the chlori-

nated hydrocarbons, a detergent comprising a vegetable oil soap, a penetrant comprising a tar acid oil, a coupling agent comprising normal butyl alcohol, an anti-foaming agent comprising ethyl alcohol, a preservative comprising rosin, a blending and thinning agent comprising sodium bichromate, and water.

No. 2,387,336, Pest Control, patented October 23, 1945 by Clarence A. Littler, Wilmington, assignor to E. I. du Pont de Nemours & Co., Wilmington. A pest control adhesive composition comprising a water-insoluble aliphatic amine containing at least 8 carbon atoms in linear chain with the amino group; nd a cationic dispersing agent.

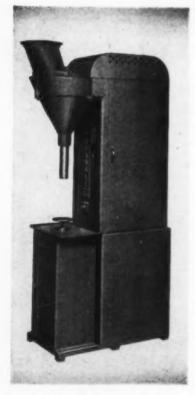
No. 2,387,572, Detergent Composition and Method of Making Same, patented October 23, 1945 by Lawrence H. Flett, Hamburg, N. Y., assignor to Allied Chemical & Dye Corp., New York. An improved detergent composition comprising alkyl aryl sulfonates, the alkyl side chains of which are derived from a kerosene fraction at least 80 per cent of which boils within the range 180° to 300° C., and a water soluble salt having an inorganic cation selected from the group consisting of water soluble sulfates, sulfites, thiosulfates, chlorides, dihydrogen phosphates, borates and acetates, the amount of said water-soluble salt having an inorganic cation being such that the sulfonate-salt mixture contains between about 40 per cent and about 65 per cent by weight thereof.

No. 2,388,082, Paint Remover, patented October 30, 1945 by Joseph C. Roediger, Brooklyn, assignor to Standard Oil Development Co. In a process of removing finish composi-tions from painted, varnished, and lacquered surfaces, the step of dis-integrating the coating by covering the finish coating with a solvent composition, comprising 45 to 53 per cent by weight of an alcohol having 2 to 5 carbon atoms to the molecule, 35 to 43 per cent by weight of a petroleum naphtha having a boiling range of 180° to 500° F. 3 to 6 per cent by weight of paraffin wax and 3 to 10 per cent by weight of an oil-soluble amine having at least 8 carbon atoms to the molecule, selected from the group consisting of lauryl amine, diphenyl amine, decyl amine, laurylmethyl amine, lauryl dimethyl amine, and heptadecyl amine.

Silverfish Control

There is no significant increase in the effectiveness of concentrations of sodium fluoride above 1 per cent, for control of silverfish. A. Mallis Pests 13, No. 4, 14 (1945).





Model V-1

PACKAGE POWDERS



... with this new
Triangle Automatic
Feed Auger Packer

This Triangle Model U-1 Auger Packer feeds the material automatically instead of by foot lever control, thereby reducing operator fatigue and increasing production from 15 to 25% over previous models. This new, streamlined unit is used for filling all kinds of powders — from several ounces up to five pounds into cans, bags, cartons or jars. Production of one operator on 1 lb. packages is 30 or more per minute. Fast, accurate, easy to use, this new Model U-1 puts pep into powder packaging, pays for itself in increased production. No priority required. Write for full information.



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December, 194¢

HEMICAL

New Low-Cost Alkyd **Meets Current Need** For Non-Ouota Resin

S&W Aroplaz 1379 Is Versatile Resin Having High Phthalate Content

To answer the current urgent need for resins made from raw materials that are exempt from existing oil and rosin quotas, U.S.I. offers its new alkyd resin, Aroplaz 1379. A modified alkyd of medium-to-short oil length, "1379" is suitable for use in a variety of air-drying and low-temperature baking finishes, such as those for metal cabinets, toys hardware and implements. It can also be used satisfactorily in metal primers and low-cost finish coats, and as a general utility vehicle. Finishes made with S&W Aroplaz 1379 air-

dry hard overnight an l bake hard in one hour at 200° F. To obtain the best drying rates, finishes should be aged from 48 to 72

High in Phthalate

Although S&W Aroplaz 1379 is a very low cost vehicle, it has a high phthalate content and performs remarkably well in all but top-(Continued on next page)

SPECIFICATIONS

| Solution: | 49-51% Solids in Mineral Spirits | |
|-------------------------|-------------------------------------|--|
| Viscosity (G.H.): | X-Z | |
| Color (G.H. 1933): | 10-12 | |
| Acid value (solvent | | |
| free basis): | 10-16 | |
| Wt./gallon @ 25°C.: | 7.7-7.8 lbs. | |
| Oil Content (solvent | | |
| free basis): | No reportable oil | |
| Phthalic Anhydride | | |
| (solvent free basis): | 33% | |
| Salubility: Complete in | all netroleum and | |

coal-tar hydrocarbons. Insoluble in ethyl alcohol. Compatible with many alkyds, varnishes and drying oils of low and medium viscosity.

Color Printing Saved by Yellows **That Now Outperform Chromes**

Ink Makers Plan to Continue Use of Benzidine Yellows Because of Their Lower Cost and Improved Workability

Well up among the war-born "substitutes" that have won a permanent place in American chemistry are the benzidine yellows, which, ink manufacturers say literally saved multi-color during the war. Synthesized from acetoacetanilide

and other U.S.I. "arylides", these benzidine dyestuff pigments, have demonstrated cost and pressroom advantages which will assure continuance of their use despite the return of prewar chrome yellows.

High Tinctorial Strength

Chief reason for the superiority of the new synthetic colors, according to one of the country's largest ink manufacturers, is their extremely high tinctorial strength-ten, perhaps more, times that of chromes. This high strength more than offsets the per-pound price differential between the two types of dyestuff.



From 6 to 66 America has adopted Superm Dick Tracy and other "comics" as part of the family. Thanks to the new benzidine vellows America could follow them-in color-through out the war.

In addition, it means that the ratio of pigment to vehicle is tremendously reduced. This fact, coupled with the smaller crystal size of the benzidine pigment, makes for a marked im-provement in the workability of the final ink. The tendency for the pigment to separate and "pile" on the printing plates is eliminated. The ink flows and handles more easily.

The new dyestuffs are non-bleeding in water, and in dilute acids and alkalies. They are also quite resistant to melted paraffin, alcohol and other common solvents, except chloroform.

Good for Majority of Inks

Only disadvantages of the new yellows are their lack of opacity and their tendency to fade on long exposure to strong light. According to the ink manufacturer, however, both of these disadvantages are unimportant in the vast majority of cases. Currently, opacity is being obtained by the addition of small amounts of white pigment or chrome. In the future, when printing papers return to their prewar whiteness, there is expected to be less and less demand for opacity in the yellow

(Continued on next page)

Redwood Seen as Source Of Oxidation Inhibitors

Products derived from redwood chips have been found to be effective inhibitors of au-toxidation in paraffin hydrocarbons, according

to a recently presented technical paper.

The most effective of the products tested was purified redwood tannin prepared by exracting redwood with warm water and then dissolving the active tannin fraction in ethyl acetate. The ether-soluble tar and the phenolic fraction obtained by destructive distillation of redwood phlobaphene were also found to be effective inhibitors.

The redwood tannins were said to compare -favorably with benzyl-p-aminophenol and cat-echol in inhibiting action.

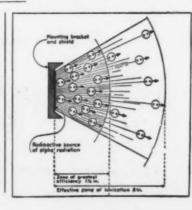
Rejuvenates Electrolyte By Addition of Acetone

Burrs, machine tool marks, roughness and other processing blemishes are sometimes re-moved from metal parts by a brightening electrolytic process employing a glycerine-hydrochloric acid electrolyte. Such electrolytes tend, after extended use, to become degenerated. A recent patent covers a method for rejuvenating such degenerated baths, by adding acetone in amounts up to 10 per cent of the volume of the bath.

New Radio-Active Device Eliminates Static Problems in Industrial Processes

A new radio-active device promises to af-ford an astonishingly simple way to end the fire hazards and production obstacles which static electricity presents in many manufac-turing processes. This radio-active device uses alpha rays, given off by radium, to ionize the air near points where friction gen-erates static. The ionized air, a conductor of static electricity, bleeds this unwanted static harmlessly off to ground.

The static eliminator consists of foil, impregnated with a radio-active material, which is attached by bonding to a non-radio-active, heavier metallic backing. This assembly is attached to the machine at the proper points. No other changes in the machinery are needed, and it is claimed that no unusual precautions need be taken to protect shop personnel, and service poses no problem,



New Low-Cost Alkyd

(Continued from preceding page)

grade whites. It is rated "fair" in color, color grade whites. It is rated Tair in color, color retention and flexibility. The latter charac-teristic, however, can be improved where de-sired by adding 5 to 10 per cent of Q-body linseed oil (or other oils, vehicles or alkyds). Zinc oxide and similar reactive pigments should be avoided.

Samples are available upon request.

Drug Intermediate Made By New Claisen Reaction

A patent of recent issue describes an im proved method of preparing 4-methyl phenyl acetone, an intermediate used in the preparation of therapeutic agents. Ethyl acetate and 4-methyl benzyl cyanide are reacted in the presence of sodium ethoxide to form alpha-(4-methyl phenyl)-acetoacetonitrile. Saponification of the syano group yields 4-methyl

phenyl acetone.

One use described for the intermediate is the preparation of alpha-(4-methyl phenyl). beta methylamino-propane, a sympathomi-metic producing effects similar to those of

Mixed Solvents Boost Soya-Bean Oil Yield

A writer in a British chemical magazine out-lines a method for increasing the extraction of soya-bean oil. While 95 per cent ethanol will extract only 12 per cent, the addition of 10 per cent trichlorethylene boosts the yield to 50 per cent.

The less-inflammable, mixed solvent is com-pletely miseible with all concentrations of

pletely miscible with all concentrations of soya-bean oil when heated. After it cools, the solution extract separates into a top layer of practically pure ethanol and trichlorethylene, which may be reused as it is, and a lower layer containing 50 per cent soya-bean oil.

"Arylide" Dyes

(Continued from preceding page)

ink. Traditionally, the yellow ink has had to be opaque because it is the first color printed; but if the paper itself is of good whiteness, there is no more reason for the yellow to be opaque than for the red and blue which are

transparent.
As to light-fastness, it is the ink makers experience that benzidine yellows are good for "999 out of 1000" applications. Packages which must have long shelf life and billboards which must withstand exposure to direct sunlight are two typical exceptions.

Hansa Vellows

Predecessors of the benzidine yellows, the Hansa yellows have considerably higher fastness to light and are used for jobs to which the newer dyes are unsuited. While somewhat lower in tinctorial strength, the Hansas have the same advantages as the benzidines in making inks which have better flow and work better on the press. Their high resistance to the action of sunlight and alkalies also makes them desirable for use in pigmenting papers and protective coatings.

Synthesis and Tinting

Benzidine yellows are made by combining tetrazobenzidine with one of the aceto-acetarylides. Similarly, Hansa yellows are made by coupling "arylides" with diazotized aniline derivatives.

By varying the intermediates used, a great number of yellows can be produced having different shades and fastness to various agents. However, current practice is to make just a few benzidine yellows and then tint them with reds or oranges to produce the desired shade.

U.S.I. has developed some 14 different arylides of widely varying properties. Specificaby writing to U. S. Industrial Chemicals, Inc.

TECHNICAL DEVELOPMENTS

Further information on these items may be obtained by writing to U.S.I.

Removing rust without sandblasting is the purpose of a new solution said to work by disintegrating the rust, and at the same time fortifying the metal against further corrosion.

To recover paint and lacquer from spraybooths, and reclaim it for re-use, a new process is described as being highly economical and to require neither special skill nor special equipment.

(No. 001) USI

To handle dangerous acids safely, a new durable corrosive-resistant pump has been designed to remove acids from carboys without the use of air pressure. The plastic pump is reported to fit carboys ef from 5 to 13 gallons capacity.

(No. 999)

USI

A stamping ink for allck surfaces, developed especially for marking plastics, may also be used on almost any highly-polished surface, according to claims of its manufacturer. It is unterstated that the ink is heat-proof and weather proof.

(No. 919) USI

To clean leather, a new detergent is offered which is described as being both a cleaner and a toner. It is said to contain no chemicals harm-ful to leather. (Mc. 011) USI

Joining thermoplastics to each other, as well as in paper, and other surfaces, is the advertised function of a new adhesive.

(No. 012) USI

Synthetic, fungus-resistant cord is offered for electrical assemblies, lacing and other applications where it is subject to attack by fungus, water, oils or flame.

USI

USI

A plastic film, intended for use in pocketbooks and similar articles, is announced as being washable, flexible, tough, and resistant to most chemicals and to fire. A wide choice of colors is offered.

(Mc. 014) USI

To test plastics, a deflectometer is designed to record the amount of bend automatically on a stress-strain recorder, and to be usable on plastics of greatly varying rigidity, as it permits the operator to magnify recorded deflection by 5, 10, 20, 50, 100 or 200.

(No. 015)

USI

To clean cement, a new detergent is formulated to penetrate the pores, emulsify grease and oils, and, under continued use, to bleach the cement surface. (No. 016) USI

Synthetic orange pigment, said to have out-standing qualities of light and chemical re-sistance, is offered in limited quantities for research. Its suitability for paper-making appli-cations is stressed. (Re. 017)

The swing is to color! This up-to-the-minute press is es-pecially designed to permit addition of color in newspaper printing, when desired. Chances are, the inks run on it will contain some U.S.I. products — resins, solvents, or dyes made from U.S.I. intermedi-



American Oil Chemists Society Holds 19th Meeting in Chicago

HE 19th fall meeting of the American Oil Chemists Society in Chicago, Nov. 7, 8 and 9, attracted the largest atendance in the 35 years of the organization's existence. Over 500 members were registered for the three-day session at the LaSalle Hotel. As usual the opening day's session was devoted to discussion of developments in the field of soap and glycerine chemistry. A total of eleven papers were read, two motion pictures were shown and one committee reported on its activities. A buffet supper and smoker was held for the men at the hotel, Wednesday evening, while the ladies had a dinner and bridge party at Normandy House. Thursday evening the entire convention party got together for dinner and dancing.

In a paper on "Irritant Action of Soap Mixtures on Skin," W. M. McKinney and L. D. Edwards of Purdue University's School of Pharmacy at Lafayette, Ind., reported on investigations of the possibility of one fatty acid salt augmenting or inhibiting the irritant action of another fatty acid salt. Simple binary mixtures were tested and evidence was offered in support of the following:

 Sodium laurate-sodium caprylate mixtures are highly irritant to skin of both sexes.

skin of both sexes.

2. Sodium ricinoleate binary mixtures with sodium laurate, sodium caprylate and sodium oleate are definitely irritant to human skin.

 Sodium linoleate binary mixtures with sodium laurate, sodium caprylate and sodium oleate show a decreased irritant action.

Sodium laurate-sodium myristate binary mixture is much less irritant to skin than can be predicted from their respective irritating powers.

Discussing "Use of Modified Rosins in Soap," B. S. Van Zile and J. N. Borglin of Hercules Experiment Station, Wilmington, outlined results where rosins are modified by hydrogenation, dehydrogenation or polymerization. The modified products, in general, they stated, are light in color and resistant to oxidation. Distinctive

advantages inhere from each of the treatments and the modified rosins were shown to be more effective in increasing wetting speed of soap solutions than are ordinary rosins. They also produce a more stable and more abundant lather. Data were given on effects of temperature, pH and builders on properties of soap containing modified rosins and compared with similar data on ordinary soaps.

E. W. Blank and A. Troy of Colgate - Palmolive - Peet Co., Jersey City, N. J., in a paper on "Determination of Borax in Soap and Synthetic Detergents" gave details of a new analytical method for this purpose.

Another new analytical method, which one commentator remarked, "has some potentialities," was presented by Santi R. Palit, of Stanford University's Dept. of Chemistry, in a paper captioned "A Direct Volumetric Method for the Analysis of Soap." Appearing later for a second time, Mr. Palit presented another paper on "Blending Soaps with Organic Solvents in Industrial Products," in which he offered suggestions for preparing new powerful soap solvents of interest in the dry cleaning field.

W. D. Pohle and V. C. Mehlenbacher of Swift & Co.'s research laboratory, Chicago, gave a detailed account of their "Comparison of Methods for the Determination of Glycerol by Acetylation." The recently developed method, they declared, "proved to be simpler, more rapid and more accurate than the acetin method."

Oliver W. Burke, Jr., of the Office of Rubber Reserve, Washington, D. C., described the problem encountered in preparing a commercial soap suitable as an emulsifying agent for use in manufacture of "Buna-S" type of synthetic rubber. He related the story of the "Soap Development Program for Government Synthetic Rubber," in which laboratories of industry, the universities and the gov-

ernment cooperated and showed, also, the film, "Victory in Rubber," which tells that story pictorially.

Another notable program feature was a 30-minute motion picture, presented by R. C. Stillman of Procter & Gamble's Ivorydale, O., chemical division, which shows, microscopically, some of the phenomena involved when dirt or oil are removed from hair by soap and synthetic detergent shampoos.

Other papers read during the soap session were as follows:

"Acid Sodium Stearates," by F. V. Ryer, Research Dept., Lever Bros. Co., Cambridge, Mass.; "Builders with Synthetic Detergents," by J. C. Harris, central research dept., Monsanto Chemical Co., Dayton, O.; "The Diffraction of X-Rays by Stearates of Calcium, Barium and Magnesium," by Gerould H. Smith and Sidney Ross, Dept. of Chemistry, Stanford Univ., Palo Alto, Calif.

Appearing for the Soap Analysis Committee, Edward Randa of Armour Auxiliaries, Chicago, submitted a technical report on a method for analysis of mixtures of soap and synthetic detergents called for in army and navy specifications. The problem of how to check on these standards has been a "headache" to the soap industry and the new procedure, which has been tentative for a year, was accepted as official by the Society.

C. P. Long, chemist in the standards dept., chemical div., Procter & Gamble Co., Ivorydale, O., was presiding officer at the soap sessions. Robert R. King, technical director, Interstate Cotton Oil Refining Co., Sherman, Tex., and president of the A.O.C.S., called the convention to order and briefly discussed the growth, expanding responsibility and future of the organization.

G. A. Chapple, assistant director of research, Wilson & Co., Chicago, was chairman of the "Chicago Committee," whose twenty members assisted in promoting the meeting.

Castor-oil Soap

Castor-oil soap corresponding to 30 per cent weight to volume of fatty acids, is recommended for antiseptic solutions. A. Firth. *Pharm. J.* 154, 318 (1945).

PERFUMERS

BASIC MATERIALS



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British Fatty Alcohols

Fatty alcohols at the present time as manufactured in Britain are subject to strict government control and sold in the form of a broad cut for a number of purposes, particularly in the textile industry for the manufacture of surface-active agents. However, it is important to use as close a cut as possible, since the various alcohols when sulfated yield products with different properties. Lauryl and myristyl alcoholics give excellent detergent and wetting materials on sulfation, while stearyl alcohol is used mainly in the preparation of emulsions. Oleyl alcohol tends to combine these properties.

There is a big scope for experiment in blending these individual alcohols or their derivatives to obtain desired characteristics. For example the combination of fatty alcohols with fatty acids gives rise to a series of synthetic waxes, the melting points and other properties of which can be varied over a wide range.

The alcohols have attracted interest in the field of perfumery, while the thiocyanate esters are reported to have great possibilities as pesticides. Salts of the sulfuric acid esters, besides extensive use as detergents and emulsifying agents, have possible applications as insecticides and bactericides. For these purposes their very low toxicity, coupled with non-volatility, should make them very attractive. The Industrial Chemist 179-86 April 1945.

Impregnating Fabrics

Fabrics, nets, cordage, etc. are protected from fungi by impregnating them with water-insoluble naphthenates, stearates or oleates of copper, zinc, cadmium or other heavy metals. These soaps are dissolved in an ammoniacal water solution and applied on the fabric from this solution. Subsequent drying drives off ammonia, leaving the soap precipitated on the fabric. Since ammonia volatilizes faster than water, it often causes spotty distribution of the soap on the fabric. This is remedied by adding to the ammoniacal solution 20-40 per cent of the weight of the water-free soap, of an alkyl olamine such as mono-, di-, or

triethanolamine or monoisopropanola-

A sample composition for impregnating a fabric contains 20 parts of copper naphthenate, 20 of 28 per cent ammonia solution, 60 of water, and 5 parts of monoethanolamine. H. Schiller, to Socony-Vacuum Oil Co. U. S. Patent No. 2,364,391.

Peroxide Value

The determination of the peroxide value of fats and oils photometrically by means of ferric thiocyanate, has been shown to be very sensitive to the presence of atmospheric oxygen, the values obtained being reduced to about one quarter when oxygen is rigorously excluded. The necessity for assuming an equivalent of 8 for peroxide oxygen in order to correlate peroxide values with oxygen absorption is thereby eliminated. C. H. Lea. J. Soc. Chem. Ind. 64, 106-9 (1945).

Fatty Acids from Tall Oil

An improvement in U. S. Patent No. 2,285,902, consists in separating the fatty acids from the rosins of black liquor soap by the use of organic solvents in which the alkali soaps are soluble hot but not cold. The separated soaps are washed with the dry organic solvents until the rosin content does not exceed about 2 per cent, the soaps are acidified while still admixed with some solvent, and the solvent removed by steam distillation. The fatty acids may be purified by vacuum or vacuum steam distillation and fractional crystallization. A. G. Haupt, to Am. Cyanamid Co. U. S. Patent No. 2,378,359.

Fat from Meat Waste

Meat waste and offal are subjected to the action of saturated or superheated steam in an apparatus described. By means of a centrifuge the oil or fat is separated from the nonfatty material. The whole is submerged in an aqueous medium containing ingredients for lowering surface tension, preferably 0.2-0.3 per cent of soda ash or caustic soda. J. C. Kernot and V. Silberstein. U. S. Parent No. 2,368,028.

Component Acid Determination

Preliminary separation of mixed fatty acids by crystallization from solvents at low temperatures is preferable to lead-salt separation in the cases of fats which contain only small proportions of saturated acids. The procedure, coupled with subsequent ester-fractionation, has been applied to the acids of sunflower seed, sesame, and peanut oils, all of which have oleic and linoleic acids as their major components. The results agree well with earlier analyses in which lead-salt separation had been employed. T. P. Hilditch and J. P. Riley. J. Soc. Chem. Ind. 64, 204-7 (1945).

Iodine Value of Castor Oil

An alteration of the rapid Hanus method makes possible the determination of the iodine value of castor oil. If, instead of the usual 10 ml., only 2 ml. of the mercuric acetate solution are added, and the usual absorption time of 3-5 minutes is allowed, the iodine values obtained differ from those of the standard method within the experimental error, namely less than 0.25 unit. R. Rosenbusch and R. Parker. J. Soc. Chem. Ind. 64, 211-12 (1945).

Fat Splitting

The application of phosphoric acid in place of sulfuric acid for hydrolysis of fat appears to be advantageous. The speed of hydrolysis depends on the acid concentration up to a maximum of 12 per cent of acid, at which hydrolysis is obtained in 2 hours at 200° C. The reaction is slow at the start, accelerates and then toward the end reaches a maximum. Up to 150° C. there is almost no hydrolysis. Bentonite improves the reaction. Glycerides of lower fatty acids are hydrolyzed more easily than those of higher fatty acids; glycerides of unsaturated acids more easily than those of saturated acids. The fatty acids obtained are clear and their molecular structure is unchanged. Glycerine can be completely recovered. The speed of the reaction is equal to if not greater than that of similar processes. X Gueniot. Bull. mat. grasses inst. colonial Marseille, 27, 167-74; through Chem. Abs.

Soap Materials

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how chemistry's war-born progress affects



Never before have such profound changes taken place in chemical industry — with so few details generally publicized — as in the war years just past.

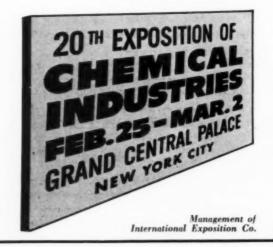
New techniques, new materials, new equipment, whole new chemical industries have sprung into being. Much has happened which, for security reasons, could not be revealed until now.

Here is your opportunity to see and hear how peacetime applications of war-born changes may affect your plants, your markets, your profits. It's the 20th Exposition of Chemical Industries, which will be held at Grand Central Palace in New York City, February 25-March 2, 1946.

What you will see at the exhibits, what you can learn there by talking with exhibitor's technical representatives, may shape your thought and actions for months to come.

For every chemist, chemical engineer, and production head throughout industry, this year's Exposition is—more than ever before—a "must." No executive responsible for the future of any business depending on chemical process, in his own or customers' plants, can afford to pass it up.

Attendance will pay you well. Be there with your associates!



Stabilization of Fats

Gum guaiac or acyloxy and alkoxy derivatives, may be readily incorporated in oils and fats by dissolving the antioxidant in an organic compound having a lipophilic group and at least 1 hydroxy group, and then adding the solution to the fat. Monostearin is an example of a compound that can be used in this way. L. C. Brown, to Industrial Patents Corp. U. S. Patent No. 2,377,610.

Tall Oil Hydrogenation

Crude tall oil is pretreated with bleaching clay to remove catalyst poisons, and then hydrogenated, preferably with repeated fresh charges of nickel catalyst, and with the concurrent removal of spent catalyst. Hydrogenation of refined tall oil in alcohol is described in an example. The resinacid fraction of tall oil showed little change in physical properties after hydrogenation at 180° C. and 1,000 pounds per square inch for 1 hour, but the thiocyanogen number dropped from the original 63.7 to 46.2. Hydro-

genated tall oil has no pine or mercaptan odor and can be used in soap manufacture and as a substitute for stearic acid. R. G. Dressler and R. E. Vivian. U. S. Patent No. 2,369,446.

Hydrogenation Effects

Spectrometric and iodometric analyses of hydrogenated fats and of heat-nickel treated oils, indicate that during hydrogenation isomers are formed of polyunsaturated acids which do not react normally upon analysis, making it impossible to obtain a valid fatty acid composition by the usual methods. K. F. Mattil. Oil & Soap 22, 213-5 (1945).

Modified Kreis Test

A sensitive form of the Kreis test for rancidity in fats and oils is described in which the reaction occurs in a one-phase system, which is suitable for direct photometric measurement. The procedure is convenient and rapid and yields reproducible results. M. F. Pool and A. N. Prater. Oil & Soap 22, 215-6 (1945).

New Perfume Oil

Oil of massoia bark, Cinnamomum massoia, is a product of New Guinea. The first sample of bark yielded 6.3 per cent of a pale yellow oil with an odor of cloves and nutmegs. This oil should be useful for modifying carnation-oil odors, as, a substitute for clove oil, in bay oil, and as a commercial source of eugenol. Soap Perfumery, Cosmetics 18, 404 (1945).

Antioxidants

A mixture of alpha-tocopherol and an ascorbyl monoester of a fatty acid exhibits a synergistic antioxidant effect in inhibiting rancidity in fats and oils, in that the mixture has a much greater antioxidant action than would be expected from a simple additive effect. The agents are normally used in amounts equivalent to 0.01-0.2 per cent of tocopherol, and 0.05-0.12 per cent of ascorbyl monoester. R. W. Riemenschneider and J. Turer, to the Secretary of Agriculture. U. S. Patent No. 2,375,250.







Vegetable Oil Extraction

It is recommended that with an oil content of less than 30 per cent, vegetable material should be solvent-extracted directly. With a content of 50-60 per cent of oil, the material should be prepressed to yield a residue with about 30 per cent of oil. The pressing residue is then solvent-extracted to an oil content of 1 per cent. Direct solvent extraction from oil seeds of high oil content yields an extraction residue containing 2-3 per cent of oil. K. W. Geisler. Progress Fortschr. deut. Tech. 8, 441-8; through Chem. Abs.

Deodorizing Fats

The addition of 0.001-1 per cent of gum guaiac, citric acid or mixtures thereof to fats or oils prior to deodorization, followed by deodorization at temperatures lower than those normally employed, results in products with much greater resistance to rancidity and reversion. The deodorization is carried out with steam at 200-250° F. and a vacuum of at least

27 inches of mercury. Other aliphatic dibasic acids or polyhydric phenols may be used. G. W. Phelps and H. C. Black, to Industrial Patents Corp. U. S. Patent No. 2,374,234.

Determination of Sulfates

Anionic sulfonated or sulfated surface-active compounds form colored salts with methylene blue. By using a standardized solution of methylene blue chloride, a colorimetric method can be applied to the determination of small amounts of sulfonated or sulfated compounds having surface activity. J. H. Jones. J. Assoc. Official Agr. Chem. 28, 398-409 (1945).

Stabilizing Agents

A marked multiple synergistic antioxidant effect is noted when mixtures of *para*-amino benzoic acid, tocopherol, and *1*-ascorbic acid, are used for stabilizing fats and oils. F. A. Norris, to General Mills, Inc. U. S. Patents 2,377,029-31.

Unsaturated Alcohols

Unsaturated fatty acids or esters are reduced to the corresponding alcohols without hydrogenation of the unsaturated linkages, by the use of a catalyst consisting of a mixture of zinc or cadmium with vanadium. Reduction is carried out at 250-300° C. and 50 atmospheres' pressure. W. Rittmeister, to American Hyalsol Corp. U. S. Patent No. 2,374,379.

Thiocyanogen Reagent

A general reagent applicable to a wide range of thiocyanogen values and capable of reacting with practically all types of fats and oils has been described. M. G. Lambou and F. G. Dollear. Oil & Soap 22, 226-32 (1945).

Fatty Acid Extraction

Free fatty acids are extracted from oils by the use of an 87 per cent solution of ethyl alcohol. V. L. Kretovich and A. A. Bundel. *Biokhimiya* 10, 159-62 (1945).

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Cation-active Compounds

Quaternary ammonium compounds can be determined by titration with a standard iodine solution, by titration directly against a paraffinchain anion, or colorimetrically. The iodine method has a wide range of application as it is applicable to any cationic surface-active compound. The cation-anion titration method appears to be particularly suitable for field use, while the colorimetric method appears to have a higher sensitivity than the others. A. S. Dubois. Am. Dyestuff Reporter 34, 245-6 (1945).

Seed Protection with DDT

Treatment of packaged and bulk seed with DDT at the rate of 0.05 per cent by weight gives adequate protection from damage by most insects that infest seed. Dermestid larvae appear to be considerably more resistant to DDT than other insects, possibly because the dense coat of hairs covering the larvae prevents the dust from coming in contact with their bodies. An objectionable feature of DDT as a seed treatment is its inability to repel the insects, but for the most part they are killed before any damage is done.

Sprays containing 5-6 per cent of DDT in refined odorless kerosene are highly effective in controlling the larvae and adults of the cadelle in the wood work of grain bins, warehouses, storerooms, flour mills, railway boxcars, etc., as well as in controlling flour beetles and silverfish. A high degree of protection of flour aginst the confused flour beetle, the cadelle, and silverfish is effected by dipping the bags of cloth or kraft paper in a 10 per cent solution of DDT in acetone or in a 5 per cent solution in carbon tetrachloride. R. T. Cotton, J. C. Frankenfeld, H. H. Walkden, and R. B. Schwitzgebel. U. S. Dept. Agr., Bur. Entomol. Plant Quarantine E-641, 7 pp. (1945).

Insecticidal Compounds

Laboratory tests with new compounds as insecticides against the pea aphid showed that DDT was very effective and appeared to be more so than derris at comparable strengths. Promising results were obtained with dibenzothiophene, 2,5-dichloroaniline,

beta, beta'-dithiocyano-diethyl ether, ground yam bean, 4,6-dinitro-ortho-cresyl acetate, 2-chlorofluorene, 4,6-dinitro-ortho-cresyl methyl ether, and phenazine. J. E. Dudley, Jr., T. E. Bronson, and F. H. Harries. U. S. Dept. Agr., Bur. Entomol. Plant Quarantine E-651, 10 pp. (1945).

Nigerian Pyrethrum

A sample of flowers grown in the Cameroon Province of Nigeria contained 0.8 per cent of moisture, 0.54 of pyrethrin I, and 0.50 per cent of pyrethrin II. The total pyrethrin content is considered satisfactory. If the flowers had been gathered somewhat earlier, it is likely that the amount of total pyrethrins would have been higher. F. Major. Bull. Imp. Inst. 43, 7-8 (1945); through Chem. Abs.

Larvicides

Oil-cracking polymer and high-boiling ligroin are more effective and economical than oil as larvicides. The activity of both of these preparations can be enhanced by the addition of fatty acids, N. V. Ermakov, Med. Parasitol. Parasitic Diseases (U.S.S.R.) 12, No. 5, 42-54; through Chem. Abs.

Demothing Product

A demothing product for closets consists of an absorbent medium, preferably cedar sawdust or chips, impregnated with solutions of paradichlorobenzene, 1,2 - dichloroethane, glycerol, and pyrethrum extract. Solution I contains cedar oil 5 pounds, para-dichlorobenzene 10 pounds, 1,2dichloroethane I gallon, pyrethrum extract in kerosene 0.5 gallon diluted to 6 gallons with Carbitol. Solution II contains equal parts of glycerol or other glycol and water. This is mixed in equal parts with Solution I to form a temporary emulsion which is used to impregnate 300-400 pounds of cedar sawdust. The glycerol reduces the volatilization of the para-dichlorobenzene and the 1,2-dichloroethane and evolves and maintains over a long period, the natural volatile constituents of cedar wood. F. Y. Chuck, to Lindauer & Co. U. S. Patent No. 2,376,-

Cattle Spray for the Tropics

Spraying with a DDT and rotenone mixture provides a practical and economical solution to one of the major problems of cattle raisers in tropical and sub-tropical regions. Cattle-dipping vats have had much less success in the tropics than in temperate regions for a number of reasons. After 110 experiments over a period of 3 years, the division of Animal Industry of the Inter-American Institute of Agricultural Sciences, developed a new spray solution which is a mixture of DDT and rotenone and is specific against the cattle tick. One hundred cc. of the solution is sufficient when used as a fine spray, to cover an animal at very small cost A wide variety of spraying equipment, ranging from a hand-operated sprayer to power equipment, secures equally effective results. A tick mortality of 95 per cent has been recorded from animals with an infestation of as high as 40 ticks per square inch.

Length of effectiveness of the treatment varies with climatic conditions, as does cattle dipping. The solution has continued to give protection against the ticks up to 80 days. More than 7,000 applications have been given over a period of 9 months, with no indication of a poisonous tendency. Science News 102, August 17, 1945.

Fumigants for Stored Food

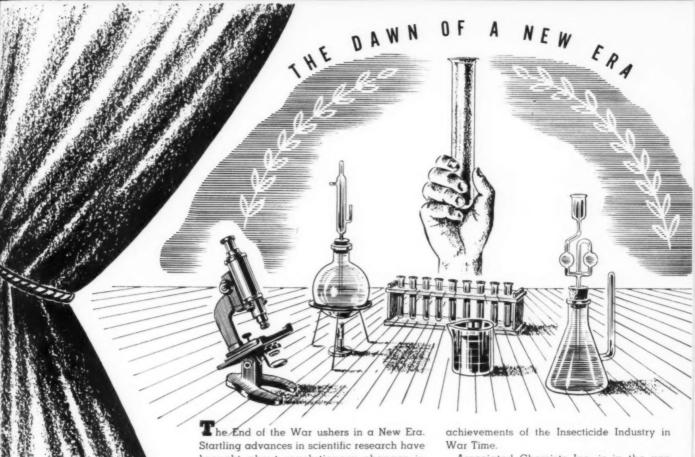
Methyl bromide in concentrations of ½ pound per 1,000 cubic feet for 4 hours, or ½ pound for 2 hours was very effective as a fumigant in killing mice and rats without causing any observable injury to fruit. R. M. Borg and L. Southwick. Proc. Am. Soc. Hort. Sci. 45, 146-50.

Solid Insecticide

A composition suitable for destroying insects is prepared by mixing a solution of dinitro-ortho-cresol in an organic solvent with a solid carrier and then removing the solvent by evaporation, to produce a composition containing not more than 8 per cent by weight of dinitro-ortho-cresol. W. E. Ripper. British Patent No. 557,695.

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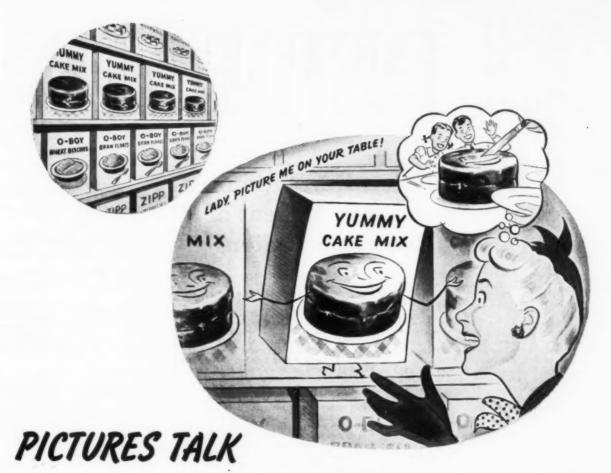


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DECEMBER

PREPARED BY NATIONAL CAN CORPORATION, NEW YORK, N. Y.

Meal Preparation Revolutionized by Wartime Development of **Canned Meat Combinations**

The development of a wide variety of canned meats-in combination with vegetables and gravy-promises a brighter future for the family pantry . . . as well as for the food

Brought to the fore when the Quarter-master Corps increased the variety of food for men in combat, these new "combination meals" have become very popular.

Af first, the Army had only ten canned meat items to serve soldiers stationed in forward combat areas. Ten different kinds of canned meat may seem to be a wide of canned meat may seem to be a wide variety, but when you consider meat the mainstay of the meal, even ten different canned meats lose their appeal when they're served day after day. As a result, new com-binations were planned that could be canned and delivered safely to the boys in the fighting lines. Although meat and vegetable combinations were never made before for canning, the project was pushed ahead.

New Combinations Planned

Combinations were made of meat with noodles, with rice, with potatoes and gravy and sauces to give variety to meat meals and well-balanced, nourishing food at the

same time.

By V-J Day, 45 different meat items were included in the cans that made up the bulk of our fighting men's food, Quite different from the "corn willy" and "goldfish" of the last war, these new canned meat combinations were made especially to appeal to the tastes of American boys used to good Ameri-

Mouth-watering Courses

Ham and candied sweet potatoes, beef Ham and candled sweet potatoes, beet and gravy, fat little sausages all set to eat were also packed neatly in cans. These canned "main courses" made menus more interesting for the men on the fighting fronts where canned meats were the only ones served.

Savory ham in raisin sauce became a universal favorite, Chopped ham and eggs,

pork and rice, ham and eggs with diced po-tatoes, pork and applesauce were some of the other combinations—whole meals sealed

neatly and safely in tin and steel containers.

A meal including one of these combina-

A meat including one of these combina-tions was really something to write home about. Even at home, it would have been something to get excited about! Canned bacon which could be eaten hot or cold was also very popular. And it was a treat to find bacon safe and delicious, all

packed in cans, so far from home.

Making up these gourmet delights was possible only because cans were such perfect protective containers. Just as cans brought good food to the fighting fronts, they are going to bring better and a wider variety of foods to civilians than ever before. These new combinations and conveniences in menu planning will be supported by good nutrition for which canned foods are already

New Markets

So far, indications are that some of these new meat combinations can be expected in cans on grocers' shelves, though it isn't known just how many or which ones.

The peacetime civilian markets for these canned foods should be great. Appeals for "quickie" meals when unexpected guests drop in, or even when the housewife herself hasn't too much time, can easily sell the consumer public.

Manufacturing cans for food, chemical, drug, cosmetic, oil and paint products before the war, National Can Corporation turned its full production and research facilities during the war to supplying the armed services with protective containers. Today, you can draw on this broad experience to solve your packaging problems. A National Can representative will be glad to offer his long packaging experience in discussing your packaging needs. Write or phone the near-est National Can branch today. Sales offices and plants are conveniently located. 1141

Oyster Beds Resist Explosives

Louisiana industries were desirous of de-termining whether there would be any damage to oysters by normal oil exploration charges. Extensive dynamite experiments were made that will have far-reaching effect on the oyster and oil industry. The size of the charge ranged far in excess of those usually permitted. The experiments revealed that the oysters and oyster beds were not damaged.

In the tests, oysters were taken from the reefs before and after the charges were fired and given lengthy observation. Previously, research men conducted experiments to determine the effects of dynamite charges on fish and shrimp in the Gulf area. 1143

Marmalade Vitamins

Average commercial marmalades of un-Average commercial marmalades of unknown history, obtained from retail stores, range from 4.4 to 9.1 mg. of ascorbic acid for 100 g. Specially prepared marmalade, suggested as a vitamin supplement material, may show an average after cooking of 28.6 mg. ascorbic acid per 100 g. This special programment of 12. marmalade has a fruit to sugar ratio of 1.2 to 1. The trick in vitamin retention lies in the processing method.

Cured Bacon Losses

Bacon that has been cured to withstand overseas storage conditions must be soaked before frying to make it palatable. But this overseas bacon, soaked before frying, loses all but 20 percent of the original thiamine and 30 percent of the nicotinic acid origi-nally present, while 78 percent of the riboflavin remains. Losses in frying without soaking are much less,

Some Spices Preserve

The old idea of spices as preservatives boils down to the proven statement that some are, and some are not.

Cinnamon and cloves, in water infusion, will prevent the growth of yeasts and may have an actual germicidal action. Pepper, either white or black, seems to encourage some yeasts. Several other spices are slightly discouraging to the yeasts but not effective preservatives. So if you are putting your faith in spice, make it cinnamon.

Honey Inverters

Enzymes in honey may have technological interest, as well as providing a means to dis-tinguish between genuine and artificial, or heated and unheated honeys.

Honey invertase, about which very little is known, differs markedly from yeast invertase, in some of its properties. However, the darker the honey, the greater its invertive activity toward sucrose,

Apple Syrup

Cull apples have been a drug on the market whenever there was a large apple crop. Within recent years, food technologists have Within recent years, food technologists have been developing by-products from these waste apples. One procedure was developed for making an apple syrup. This has found favor in industrial applications as a mois-ture-retaining agent because of its high levulose content, It is also being used as a

tobacco humectant.

As an edible food, it is objectionable because of its slightly bitter aftertaste. The removal of lead and arsenic spray residue deposits was difficult under this initial process. However, continued work by this food laboratory found a solution to the objectionable aftertaste and spray residue problems. The new procedure uses the absorption powers of ion exchangers,

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Of Interest to Bakers

Army Spread, the butter-and-cheese-curd "preserved butter" that is made for the tropics, is found not to be suitable for home cooking but can be utilized efficiently by commercial bakers for cookies, sweet yeast-raised goods and Danish pastry.

Crabs

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Sea water is utilized for cooking and for washing king crabs on a cannery ship, according to an interview with the captain and the technologist of the vessel. The product needs no added salt and no buffer solution in the can.

A complement of about 400 persons, including the fishermen, is required on board the factory ship, in order to produce a pack of 400 cases each containing 96 half-pound flat tins of fancy or Grade A crabmeat. The less desirable grades are not packed. 1149

Meat Tenderness Studied

Tenderness is one of the important components of palatability in meat. A theory widely held for some time is that the fatter the animal the tenderer its meat will be. A reliable, easily applied guide to tenderness would be of great value to all who handle meat. Because of the many conflicting research reports, a series of experiments were planned primarily to observe the relationship between fatness and tenderness. Lambs were used in these tests. Extensive data and accompanying conclusions have been published in bulletin form.

Weed Control

Growth-promoting chemicals may be important as weed killers. The weeds literally grow themselves to death. The action is selective in certain cases.

lective in certain cases.

In a recent experiment, bindweed in an orchard was destroyed within 10 days, the below-ground parts being affected to a depth of 14 inches, while the apple root-stocks appeared unaffected. In another test, application during July, August and September caused the self-destruction of dandelion, narrow-leaved plantain, lamb's quarters, pigweed, and other weeds, and poison ivy was so weakened that the plants were dead by spring. Grasses, in general, are not affected. White clover, dandelion, narrow-leaved plantain and round-leaved mallow were removed without injury to a Kentucky bluegrass lawn. Cereal and turf seeds germinated normally in soil of the treated areas, 5 weeks after treatment.

ment.
The chemical used is 2-4-D (2,4,dichlorophenoxyacetic acid), already used for setting tomatoes in greenhouses and for promoting the rooting of cuttings. The extent of the weed-killing property is still under investigation and limitations on its use must be explored before it can be regarded as other than experimental, but it is promising.

Technical Topics

EDIBLE OIL FOR PERFUMES—Filbert oil, one of the best edible oils, is said to have the property of absorbing and retaining odors in perfumes.

PROCESS TIME—Thermal processing time or temperature can not be reduced for canned meat because of the presence of any or all of the common curing agents, NaC₁, NaNO₂, NaNO₃ and sugar, in the proportions permissible in meat products.

INSECTICIDE SOLVENTS — Studies of the most acceptable solvents for DDT indicate that several ketones, such as acetophenone, cyclohexanone, methyl isobutyl ketone, isophorone, and mesityl oxide, have high solvent power for DDT. The aromatic hydrocarbons (benzene, xylene, etc.), the chlorinated aliphatics (methylene chloride, trichlorethylene, etc.), and the chlorinated aromatics (chlorobenzene, orthodichlorbenzene, etc.) are very good solvents. Solubility of DDT in certain ethers such as dioxane and anisole is also very high. Several esters such as ethyl benzoate and tributyl phosphate are only moderately good solvents. The aliphatic petroleum fractions are comparatively poor solvents for DDT, but will probably be widely used because of their ready availability.

NEW BORAX-BASE FLUX — In a search for substitutes for fluorides, research workers developed borax-base fluxes for aluminum, which have proved extremely satisfactory. A typical composition is: Borax, 50 parts; potassium chloride, 25 parts; sodium chloride, 25 parts; titanium dioxide, 2.5 parts; sodium bisulphite, 11.3 parts. 1155

NEW ABRASIVE — Cerium oxide is reported to be far superior to any material heretofore used as a fine abrasive for polishing optical glass and metals. Its use was disclosed among the other secrets which the war got out of Germany. It is made from the crude hydroxide by treating with nitric acid, trisodium phosphate, and oxalic acid, and igniting.

ZINC VANADATE — The efficacy of zinc vanadate as a catalyst in the synthesis of acetone from acetylene and water has been reported. The presence of carbon monoxide, carbon dioxide, methane, hydrogen, and a mixture of carbon monoxide and hydrogen, it is said, does not adversely affect the process.

SYNTHETIC THYMOL SOURCE—Australian eucalyptus oils are being heralded as the source of synthetic thymol and menthol. The oil of *E. dives* and *E. numerosa* contains 45 percent to 50 percent of 1-piperitone; the oil of *E. citriodora* contains 70 percent to 85 percent of citronella. 1158

NEW METAL PIGMENT — A patent has been issued for a finely flaked (325 mesh) electro-deposited nickel, making it the latest addition to the class of metallic pigments, 1150

BETTER LACQUER — The addition to plasticized shellac varnish of 7.5 percent to 10 percent (on the weight of the shellac) of ethylcellulose results in a lacquer which has properties equal to, if not better than those of a standard nitrocellulose-dammar lacquer.

PAPAIN FOR WOOL - Papain, used to treat wool, shows some promise of making "non-tickle" woolen clothing.

EXPLODING FRUIT PEELS OFF—It is reported that a novel method for exploding the peels from vegetables and fruits has been patented recently.

PECTINS SHOW POSSIBILITIES — Recent reports indicate that the metallic salts in pectin may have valuable industrial applications, such as in the cosmetic industry. 1163

GLYCERINE CRYSTALS—Method of preparing glycerine crystals to super-cool liquids has been announced.

GLASS-TO-STEEL - Glass-to-steel fusing, to make a permanent airtight seal for metal electron tubes, is now possible through a method developed by engineers. 1165

CHEMICAL COMBINATIONS AND THE SKIN – Recent research is reported to show that living skin can be changed chemically under the influence of externally applied substances.

AMINO ACID INFLUENCE ON PROTEINS — A recent study has revealed that amino acids are essential to increasing the nutritive value of foods.

Every effort will be made to furnish additional information on these articles. Where such information is not obtainable, we will refer inquiries to the original source of the article. Write to National Can Corporation, 110 East 42nd Street, New York City. Please mention the number at end of article—also name of the magazine you saw it in.

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- CHAPTER XVIII. ACTIVE PRINCIPLES OF PYRETHRUM— The pyrethrins and their derivatives. Action of pyrethrins on cold-blooded animals. Effect of pyrethrins on warm-blooded animals.
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- **CHAPTER XXIV. PYRETHRUM LIVESTOCK SPRAYS.**
- CHAPTER XXV. PYRETHRUM HORTICULTURAL POWDERS, DUSTS AND SPRAYS—Pyrethrum dusts. Pyrethrum sprays. Ovicidal action of pyrethrum.
- ◆ CHAPTER XXVI. MISCELLANEOUS USES OF PYRETHRUM— Mosquito control. The pyrethrum aerosol bomb. Pyrethrum aerosol spray. The bomb. The propellant. Aerosols vs. oil sprays. Mosquito repellents. Other uses.
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Here are 10 reasons why the REGAL "MIST-O-MIZER" DDT Aerosol Insecticide Dispenser is top choice among thousands of users all over the country:



The Regal "MIST-O-MIZER" stands upright on a broad flat base and will not roll.



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Easy to operate; ready for immediate use with a simple twist of the patented control valve wheel.



"MIST-O-MIZER" refillable containers have a special shipping cap sealed in place by a plastic coating. This plastic seal when unbroken, guarantees receipt of an untampered package.



Contents of "MIST-O-MIZER" is a non-inflammable insecticide-NO FIRE HAZARD.



Extra safe container specially designed for home use. "MIST-O-MIZER" Aerosol Bombs are NOT SURPLUS MATERIAL. Regal went to additional expense to give positive safety in a heavier container fully complying with and exceeding all requirements of the Interstate Commerce Commission.



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Spray goes directly upward. Regal aerosol insecticide gives full over-all dispersion and greatest efficiency in killing power. When sprayed in this manner, it thoroughly permeates every nook and cranny of room.



What's more, the Regal "MIST-O-MIZER" with 3% DDT contains pyrethrum for rapid knock-down. Along with DDT's lasting killing power, it offers the most efficient, economical and safe way to dispense insecticides.

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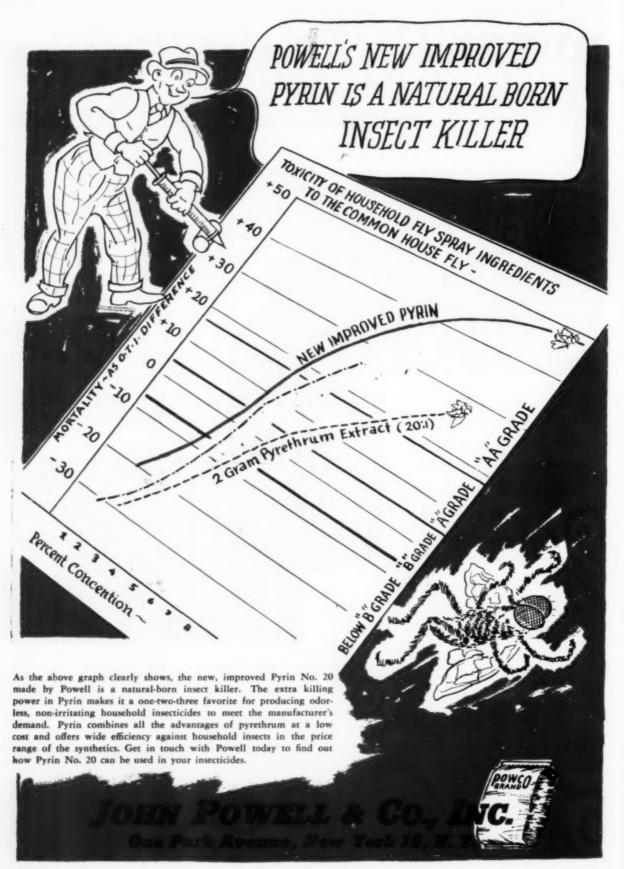
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Here's an interior view of Regal's laboratory where strict control makes certain that the rigid specifications for the "MIST-O-MIZER" are continually maintained. Right, the assembly line behind the product in a

modern plant with sufficient capacity to meet every requirement.



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USERS OF PIGMENTS

have found those unique Columbia pigments, Calcene T and Silene EF, to be of immeasurable value, particularly in obtaining desirable qualities in both synthetic and natural gubber stocks.



These few examples are indicative of the results of a progressive policy . . . a policy which will continue to bring Columbia customers the advantages of many more "firsts."

COLUMBIA CHEMICALS

PITTSBURGH PLATE GLASS COMPANY . COLUMBIA CHEMICAL DIVISION

GRANT BUILDING, PITTSBURGH 19, PENNSYLVANIA

Chicago · Boston · St. Louis · Philaburgh · New York · Cincinnati · Cleveland · Philadelphia · Minneapolis · Charlotte · San Francisco

COLUMBIA ESSENTIAL INDUSTRIAL CHEMICALS

Sada Ash · Caustic Sada · Sadium Bicarbonate · Liquid Chlorine · Silene EF (Hydrated Calcium Silicate) · Calcium Chloride · Sada Briquetiella Modified Sadas · Caustic Ash · Phosfiake · Calcane T (Precipitated Calcium Carbonate) · Pittchlor

KLENZ-AIRE DEODORANT LK

DILS MAKE A FINISHED DECORART SPRAY



for only 60° A GALLON

There is a great field for a deodorant of this type. It kills all tobacco, cooking, theatre and tavern odors. It purifies the air of any public place where crowds assemble. A little of this finished spray solution used by means of a spray directly into public urinals will have an instant and efficient deodorizing effect.

Order a trial pound and convince yourself that Klenz-Aire Deodorant Oils are the most inexpensive all-purpose deodorants you have ever used.

ODORS AVAILABLE

ANTISEPTIC HONEYSUCKLE ORIENTAL PINE NEEDLE CEDAR LAVENDER ROSE SANDALWOOD TREPLE OARDENIA NEW MOWN HAY WISTERIA

AROMATIC PRODUCTS, INC.

15 EAST 30th STREET . NEW YORK 16, N. Y.

ATLANTA . CHICAGO . DALLAS . PITTSBURGH

MEMPHIS . SAN FRANCISCO . LOS ANGELES



DRASTIC

ON

SHARPLES ETHYLAMINES

Open New Research and Industrial Fields

The recent price reductions of Sharples Ethylamines are of such magnitude as to change radically previous ideas of the chemical industry with regard to fields of application. Many processes using the Ethylamines as solvents or reactants which were formerly economically impractical should now become commercially feasible and should be recon-

sidered. The possible utility of the Ethylamines in your manufacturing operations warrants immediate investigation.

Sharples Ethylamines are available in unlimited quantities. Specifications and use information are given below. Samples and a complete schedule of prices will be sent promptly upon request.

| Specifications | Monoethylamine (70% aqueous sol'n) | Diethylamine | Triethylamine |
|---|---------------------------------------|--------------------------------------|------------------------------------|
| Culor | Water-white | Water-white | Water-white to light straw |
| Specific Gravity @ 20/20° C. | 0.79 - 0.80 | 0.71 | 0.74 - 0.76 |
| Water Insolubles | None | None | _ |
| Minimum Amine Centent | 70.0% as Monoethylamine | 98.0% as Diethylamine | 88.0% as Triethylamine |
| Distillation: Initial boiling pt. Final boiling pt. | = | 53.0° C. minimum 59.5° C. maximum | 72.0° C. minimum 95° C. maximum |

PRESENT AND SUGGESTED USES

MONOETHYLAMINE 70% aqueous solution

PETROLEUM: Solvent extraction; preparation of amides useful in refining of lubricating oil; complex salt with CuCl useful for recovery of diolefins; intermediate for preparation of demulsifier.

SOLVENT: Selective solvent in petroleum and vegetable oil refining; solvent for wide range of organic compounds.

TEXTILE: Intermediate for synthesis of surface active agents, dyestuffs and sizing compaunds.

RUBBER: Synthesis of vulcanization accelera-

PLASTICS: Condensing agent for urea-formoldehyde molding mixtures; preparation of various nitragen ethylated amides which are useful as plasticizers; condensation products with ether resin forming materials useful as moldings, coatings, adhesives and sizing compounds.

CERAMICS: Deflocculating agent for increasing strength of clay bodies.

PHARMACEUTICALS: Synthesis of medicinals.
PHOTOGRAPHY: Synthesis of photographic

DIETHYLAMINE

PETROLEUM: Solvent extraction, preparation of amides useful in refining of lubricating oil, complex solt with CuCl useful for recovery of diolefins, intermediate for preparation of pasaline stabilizer.

SOLVENT: Selective solvent in petroleum and vegetable oil refining; solvent for wide range of organic compounds.

TEXTILE: Intermediate for synthesis of surface active agents, dyestuffs and sizing compounds.

RUBBER: Intermediate for synthesis of a number of ultra-accelerators of vulcanization and acclerator activators for natural and withhit rubbers.

PLASTICS: Condensation with other resin forming materials to give products useful for moldings, coatings, plasticizers and polishes.

PHARMACEUTICALS: Intermediate for synthesis of certain local anesthetics, antimolarials, antiseptics and other medicinal chemicals.

COSMETICS: Intermediate for synthesis of emulsifiers.

TRIETHYLAMINE

PETROLEUM: Agent for improving recovery of catalyst in fluid cracking operations.

SOLVENT: Catalytic solvent in chemical synthesis; solvent for many organic compounds; stabilizer for certain chlorinated hydrocarhons.

TEXTILE: Preparation of wetting, penetrating and waterproofing agents of quaternary ammonium types.

RUBBER: Preparation of accelerator activator for natural and synthetic rubbers.

COSMETICS: Preparation of emulsifying agents and germicides.

(If required for specific applications, an anhydrous grade of Triethylamine is available at increased price.)

Sharples Chemicals Inc.



PHILADELPHIA - CHICAGO - NEW YORK

MUSCA DOMESTICA—known as the common house fly—it never bites, but it may act as a mechanical carrier of the micro organisms of typhoid fever and dysentery, etc. Multiplies rapidly. Within her span of ten weeks, often lays 500 to 600 eggs. Within three weeks eggs hatch and the cycle is repeated with each new female.



Baker's DDT

FOR CIVILIAN AND VETERINARY FORMULATIONS

FLIES are one of the worst common carriers of disease. DDT (dichloro-diphenyl-trichloroethane) has shown phenomenal results in killing various types of flies, including the common house fly.

The U. S. Department of Agriculture, in its Bulletin USBA-45-1 states:

"A residue left by a spray containing DDT is probably more effective against houseflies or stableflies than any other treatment, On ceilings and walls of homes and barns where flies rest a deposit of this new insecticide retains its toxicity for several weeks or months. A 5-percent DDT suspension made of wettable DDT powder and water may be applied as a spray to any surfaces where

flies are observed to rest, such as walls, doors, screens, ceilings, cross beams, and lamp cords. Flies enter open doors and windows and rest on the walls and screens, especially at night. When these places have received a residual treatment of DDT, the flies die in 1 to 3 hours."

Baker's DDT is a fine crystalline powder approaching a white color, with a minimum setting point of 89° C. It is available in 25, 50, 100 and 200 pound containers. Write for prices and tell us your requirements.

J. T. Baker Chemical Co., Executive Offices and Plant: Phillipsburg, N. J. • Branch Offices: New York, Philadelphia and Chicago.



Baker's Chemicals

C. P. ANALYZED.

FINE

INDUSTRIAL



PINE OIL DISINFECTANTS

PHENOLIC DISINFECTANTS

CRESOL DISINFECTANTS

LIQUID INSECTICIDES

CRESTALL FLUID B. A. I.

BAC-TROL GERMICIDE

U. S. P. CRESOL COMPOUND

MOSQUITO LARVAEOIDE

ANIMAL SPRAYS & DIPS

CRUDE CARBOLIC ACIDS

HOSPITAL DISINFECTANTS

WOOD PRESERVING OILS

CATTLE SPRAY CONCENTRATE
CRUDE CRESYLIC ACIDS
REFINED CRESYLIC ACIDS
DISINFECTANT OILS

ARSENICAL DIP WEEVIL KILLERS ENGINE CLEANER

GREASE SOLVENTS

CKLUJUIL UILS

WEED KILLER

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TIC-TOX

Certified



Products

Quality Products — To Fit All Your Requirements—Whether Strength, Color, Odor, Price — or Special Specifications.

Baird & McGuire, Inc.
HOLBROOK ST. LOUIS
MASSACHUSETTS MISSOURI

AVAILABLE FOR PROMPT DELIVERY

POTASH

SOLVAY offers prompt delivery of this high quality Caustic Potash liquid.

Shipped in tank cars, Solvay Caustic Potash liquid contains 49-50% Potassium Hydroxide. In drums, this clear liquor contains 45% KOH. SOLVAY CAUSTIC



49-50% LIQUID in tank cars

45% LIQUID in drums

SOLVAY SALES CORPORATION

Alkalies and Chemical Products Manufactured by
The Solvay Process Company

40 RECTOR STREET

NEW YORK 6, N. Y.

Boston • Charlotte • Chicago • Cincinnati • New Orleans • New York • Philadelphia • Pittsburgh •

Cincinnati • Cleveland • Detroit



Pre-War Naphtha Before Treating

NITROGEN BODIES PARAFFINS NAPHTHENIC **OLEFINS** ACIDS NAPHTHENATE SALTS NAPHTHENATES SULPHUR COMPOUNDS 'Depolarization' AROMATICS PHENOLS NAPHTHENIC ACID DEPOLARIZING FILTER AND SALTS, LEAD, IRON, COPPER, ETC.

PHENOLS

NITROGEN BODIES

SULPHUR COMPOUNDS

AROMATICS

OLEFINS

PROCESS REMOVES

That

Chemical Instability

Mal-odors

Staining

Absorbtion in fabrics, wood, plaster, paper etc. resulting in "Residual" odors.



A stable pleasant odored, non-residual odored, non-staining and NON-TOXIC Naphtha

PROCESS

Pives

THE "Depolarization" PROCESS IS

A DEVELOPMENT BY THE RESEARCH LABORA-TORIES OF THE ANDERSON-PRICHARD OIL CORP. FOR THE PRODUCTION OF THEIR

DEODORIZED"

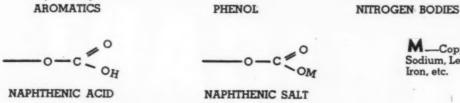
PARAFFINS

Naphthas

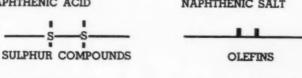
NAPHTHENES

Used, where clean drying, non-toxic and non-residual odor naphtha (from petroleum) is required whether for Paints, Insecticides or Industrial uses.

DEODORIZATION" process removes



M_Copper Sodium, Lead, Iron, etc.

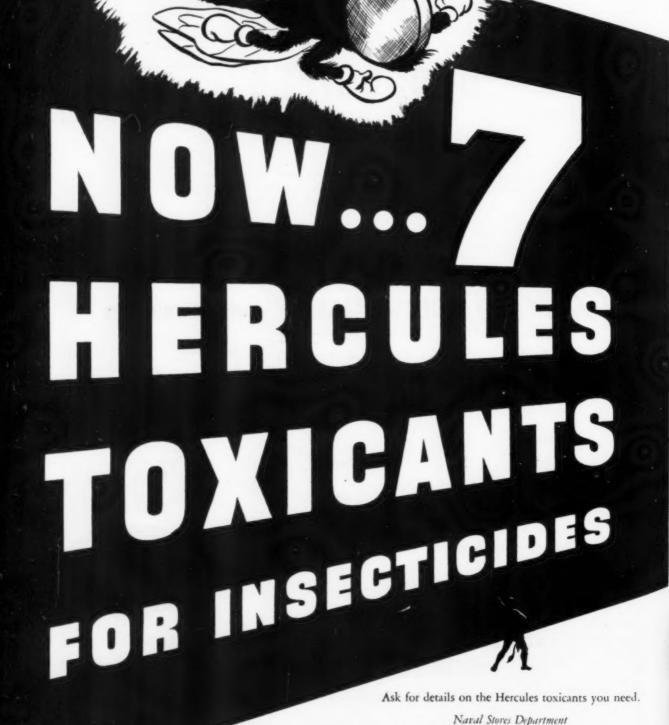




ANDERSON-PRICHARD OIL CORPORATION



BRANCHES IN ALL PRINCIPAL CITIES



HERCULES POWDER COMPANY

961 Market Street, Wilmington 99, Del.



1. THANITE

Makes a fast-knockdown, high-kill spray effective against household pests such as flies, mosquitoes, bedbugs, silverfish, ants, and moths.



2. THANITE +DDT CONCENTRATE

The addition of DDT to Thanite utilizes the best features of each toxicant. Makes a 100% "Knockdown," 100% "Kill" spray at very low cost.



3. THANISOL 70

A water-base toxicant especially recommended for use in kennels and on live-stock. Thorough tests have demonstrated its effectiveness, its safety, and long-lasting repellency, in both sprays and dips.



4. THANISOL 70 +DDT CONCENTRATE

Water-dispersible—combines residual effect against horn flies with speedy knockdown and high kill of stable flies. Ideal for making fully-effective livestock sprays.



5. AEROSOL DDT

Made only by Hercules and designed specifically for use in Aerosol bombs. Now available in quantity.



6. WATER-MISCIBLE DDT CONCENTRATE

Water-dispersible—for use in spraying barns, city dumps, garbage pails, industrial buildings where the residual effect of DDT is required in the most economical form.



7. OIL-SOLUBLE DDT CONCENTRATE

A general-purpose concentrate for use wherever DDT in oil solution is required.



Koppers

Crude Naphthalene

for use in controlling Agricultural pests

Even under wartime restrictions, large quantities of crude naphthalene were used by farmers for the control of wireworms, earwigs, carrot rust flies, onion and gladioli thrips, lice on livestock and poultry, and other insects.

We shall be glad to furnish samples of crude naphthalene to insecticide and dry dip manufacturers, agricultural experiment stations and other established agencies.

Koppers also produces—

Refined Naphthalene
Tar Acids • Tar Acid Oils
and other materials for the insecticide industry.

KOPPERS COMPANY, INC.

TAR AND CHEMICAL DIVISION — KOPPERS BUILDING PITTSBURGH 19, PA.

Buy Victory Bonds . . . and keep them!





FACTS FROM THE SOURCE



There's Sales Magic in DDT, but...

The press has given DDT sensational publicity. There has been a confusing welter of claims and counter-claims . . . truths and half-truths. There is still much to be learned and proven concerning the uses of this remarkable toxicant.

Geigy, the originators of DDT Insecticides, have pioneered in laboratory and field research. They are constantly carrying this work forward to determine the effectiveness of various DDT compositions and establish the best products and methods of compounding and application for specific uses.

Geigy can now supply DDT for processing to meet civilian insecticide requirements. — Also, a variety of field-tested DDT compositions are now available through Geigy for further extension by spray and dust manufacturers.

Geigy invites your inquiries and offers full cooperation in the solution of your DDT problems.

Insecticidal compositions containing DDT are covered by U. S. Patent No. 2,329,074.

GEIGY COMPANY, INC.

Originators of DDT Insecticides

89-91 BARCLAY ST., NEW YORK 8, N.Y.

7/D&O

The rapid and even spectacular growth of our business in insecticide materials has been assisted greatly by our technological developments and the general growth in the consumption of insecticides, but in the main it has been based and must continue to depend on the increasing tendency of manufacturers to look to Dodge & Olcott as a preferred source of supply.

Recent announcements of additions to our personnel and facilities, and others which will follow in the near future, imply no changes in basic policy, but do serve to emphasize our intention and our ability to keep pace with our rapidly increasing responsibilities and with the ever more exacting requirements of the industry.

Our position in pyrethrum and rotenone materials has strengthened steadily from year to year, and while many new discoveries have been and are being made in the insecticide field, we firmly believe that the importance of these products in insect control has been enhanced rather than diminished, and that the demand in the future will be greater than ever before. Our own development of Purified Pyrethrum Extract 20% made aerosols practicable and possible,

and in other ways is contributing to expansion in the use of pyrethrum in new fields.

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Of even greater importance is our discovery of a new class of organic insecticide materials regarding which we have had relatively little to say up to the present. This reticence has no been due to modesty or doubt as to the value of these new products, but because their potential fields of usefulness are so great and keep expanding so much under investigation that even two years of intensive experimentation leave us with the feeling that the surface has hardly been scratched.

Briefly these new chemicals may be described as highly toxic to an extremely wide variety of insects, substantially non-toxic to warm-bloods animals, odorless and non-irritating, and possessing such an unusual degree of stability at to open many new possibilities. They are effective at low concentrations and exhibit a high degree of synergism with pyrethrins and some other materials.

While their limits of usefulness will not be defined for a long time, present information happermitted the formulation and introduction

or 1946

anumber of insecticide concentrates which have demonstrated unusual effectiveness and economy ombined with complete freedom from objectionable characteristics, and without hazard to the manufacturer, the operator, or the general public. One of these, Pyrenone No. 20, was announced in the October issue of "Soap," and 1946 will see many important additions to the list.

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For 1946, manufacturers can count on Dodge Olcott, Inc. for the same standards of quality, evice, and treatment they obviously have appreciated in the past, plus a number of new and ery valuable materials.

In addition our new Unit of Entomological

Research, headed by Dr. W. E. Dove and adequately staffed by his thoroughly competent assistants, not only will enable us to back our products and our recommendations with sound basic research, but will be of immense assistance to our customers in the solution of their technical problems.

For many reasons the year 1946 will be an unusually difficult and confused period for insecticide manufacturers, and many questions of formulation and policy will be handled on a tentative basis until certain situations can be clarified. Dodge & Olcott, Inc. will be in a position to be of concrete assistance in the solution of 1946 problems, and in the preparation for the 1947 season.

Dodge & Olcott, Inc.

180 Varick Street, New York 14, N. Y.

BOSTON • CHICAGO • PHILADELPHIA • ST. LOUIS • LOS ANGELES Plant and Laboratories, Bayonne, N. J.

Official Test Insecticide . . .

Supplies of the 1945 Official Test Insecticide for evaluating insect sprays by the Official Peet-Grady Method are available from the office of this Association. The 1945 O.T.I. is official for testing from June 1, 1945 through May 31, 1946. O.T.I. of any previous year is obsolete and should not be used.

Supplies of 1945 O.T.I. are available at \$5.00 per dozen six-ounce bottles to members of this Association. To others, there is a service charge of \$1.00 per dozen. Single bottles are \$1.00 each. Check with order is required.



National Association of Insecticide & Disinfectant Manufacturers, Inc.

110 East 42nd Street

New York

Kearny, N. J.

OFFICERS

BOARD OF GOVERNORS

J. L. BRENN Huntington Laboratories, Huntington, Ind.

H. W. Moburg Rex Research, Inc., Toledo, O.

A. W. Morrison Socony-Vacuum Co., New York

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JOHN A. MARCUSE West Disinfecting Co., L. I. City

R. H. YOUNG Davies-Young Soap Co., Dayton, O.

ATLAS Surface Active Agents are available now

for your...REPELLENTS...D.D.T. SPRAYS
DORMANT OIL SPRAYS...WEED KILLERS
HORMONE SPRAYS...AGRICULTURAL
INSECTICIDES...HORTICULTURAL
INSECTICIDES

Atlas emulsifiers, spreaders, wetting agents and synergistic chemicals are available now to insecticide and fungicide manufacturers. Unavailable during the war for many end uses, their high emulsifying efficiency, superior spreading power and wide compatibility have returned to help in the production of more effective insecticides.

Atlas surface agents are many and varied and adaptable. They are used with many different solvents, with all kinds of hard and soft water, and in cold weather or hot. Because Atlas knows how to manipulate these chemically complex materials, they can be made to meet most any emulsifying, detergent or wetting challenge. They are ver-

satile materials upon which you can build. We invite you to make use of these materials.

FOR PASTES, TOO

ARLEX (Atlas Commercial Sorbitol Solution) is used as a moisture content stabilizing agent in ant baits and other insecticidal pastes.

ATLAS SPANS AND TWEENS



Atlas Spans and Tweens are series of simple and modified long chain fatty acid esters of the hexitol anhydrides. They are typical of Atlas emulsifiers that are used in the manufacture of insecticides. The 20-page illustrated booklet is your for the asking.

Spans and Tweens: Reg. U. S. Pat. Off.

ATLAS

INDUSTRIAL CHEMICALS DEPARTMENT



ATLAS POWDER COMPANY, Wilmington 99, Del. Offices in principal cities • Cable Address-Atpowco

FOR KNOCK DOWN

AMERICA IS 100% DDT CONSCIOUS

Every housewife, farmer, butcher, baker and candlestick maker has an opinion on PDT. Reports are good.

DDT is a slow-acting insecticide—effective against many insects when properly applied.

Therefore as practical usage develops it becomes clear the: Pure Pyrethrum Extract is required for the dramatic spectacular knock-down!

THE ANSWER IS PYREFUME

OUR CLEAR AND POTENT PYRETHRUM EXTRACT
COMBINED WITH OUR DDT 30% SOLUTION

We also have

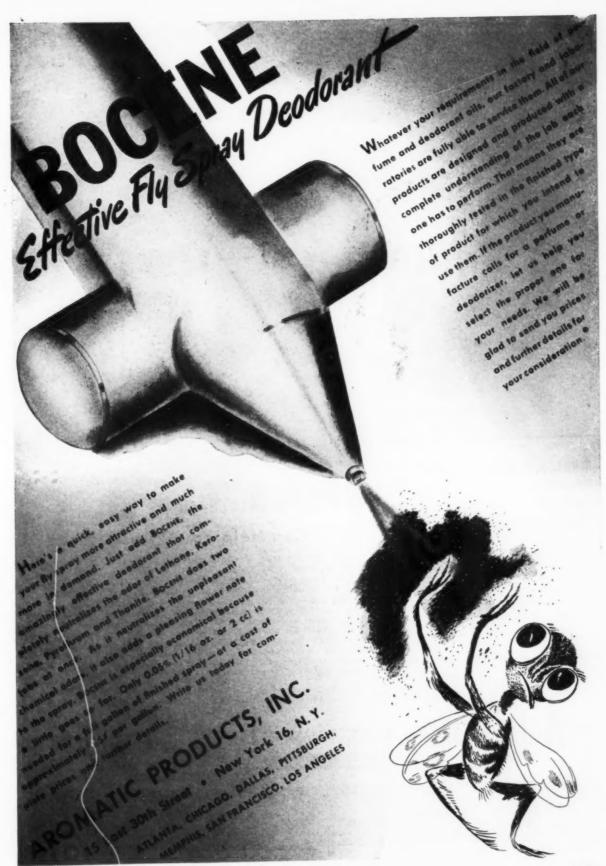
DDT WETTABLE POWDER and 10% ROACH POWDER and EMULSIONS

All Available for Prompt Shipment

S. B. PENICK & COMPANY

50 Church St., New York 7, N.Y. 735 W. Division St., Chicago 10, III.

Telephone: COrtlandt 7-1970 Telephone: MOHawk 5651



December, 1945

Say you saw it in SOAP!

FOR REPEAT SALES

In Today's Competition



HUDSON Is Ready-Are You?

HUDSON is ready—right now—to help you round out your merchandising program—ready not only to recommend BUT ALSO TO SUPPLY the exact Sprayers or Dusters best qualified to assure successful application of your products. To save time, see your local directory for the name of your HUDSON representative. He is fully qualified to give complete information on HUDSON Sprayers and Dusters. Or write us direct. Do it today!

() 1945 H. D. H. MFG. CO.



*HUDSON

Can Help You Please Her

Steady sales for your product require building—and then maintaining—consumer acceptance.

This means selling users so effectively on their first experience with your brand that they'll automatically ask for it by name next time they buy.

This also means that the sprayer or duster you sell to apply your insecticide, disinfectant, moth product or deodorant must do the best possible job. It must be designed for perfect application and easy use . . . must give your product the greatest opportunity to guarantee the confidence of users.

HUDSON Sprayers and Dusters do just that. As the world's largest manufacturers of Sprayers and Dusters, this company can furnish the exact equipment exactly suited for your products . . . equipment that will help win steady customers for your brand.

H. D. HUDSON MANUFACTURING COMPANY

589 East Illinois Street, Chicago 11, Illinois Branches in Principal Cities in the U. S. A.





Hudson Electric Sprayer



A GREAT PAIR!

Pyrethrum Concentrates— . D.T. Concentrates

Prentiss pyrethrum concentrates and DDT concentrates are a great pair—and are naturals for your 1946 insecticides. Now that they are available, unlimited possibilities exist for you to manufacture any number of different insecticides. Household fly sprays, for quick knock-down and effectiveness against roaches need pyrethrum and will have lasting killing power by including DDT. Wettable DDT powders and water-miscible DDT insecticides are controlling flies

Yes, pyrethrum concentrates and DDT concentrates by Prentiss are a natural pair no matter how you plan to use them. DDT will assure your product of extremely high killing power. Its residual properties are such that its toxicity to insects persists over long periods. What's more, concentrates of this powerful toxicant can be supplied by Prentiss for further extension by spray and dust manu-

And, no matter what insecticide you make, you will still want the rapid knock-down power supplied by Prentiss pyrethrum concentrates.

If you are thinking of a new 1946 insecticide—or an improvement on an old standby-call upon Prentiss today and find out what this great pair can do for your household, agricultural, or livestock pest-killing compounds.

PYRETHRUM EXTRACT

GROUND PYRETHRUM FLOWERS

FORTIFIED RED

SOUILL

DERRIS POWDER

CUBE POWDER

D.D.T. CONCENTRATES



110 WILLIAM ST., NEW YORK 7, N.Y.

9 SO. CLINTON ST., CHICAGO 6, ILL







YOU CAN SELL MORE SOAP!

Take it from an old timer, (we celebrate our 40th Anniversary on January 4, 1946) to sell more liquid or powdered soap the dispensers have got to be good. 40 years to an ideal: to produce the best soap dispensers that money can buy. That's why the leaders in the Sanitary Supply Trade consider Bobrick the No. 1 Name in Soap Dispensing Equipment.

Here is a crew of veteran salesmen ready to sell more soap for you. Replace worn out, obsolete models — we'll bet many of your customers do not know that new dispensers are again available. A dispenser not working properly won't sell soap. New building and remodeling necessitates new dispenser installations ... more soap sales—get your share! Bobrick Soap Dispensers are designed for beauty and hard usage. Your customers will like them because they work and work and work, and they can't leak, drip or clog.





Established Jan. 4, 1906 — 40 Years Ago!

Bobrick

MANUFACTURING CORPORATION.
2619 SANTA FE AVENUE, LOS ANGELES 11, CALIF.

EARLY SHIPMENTS F.O.B. NEW YORK OR LOS ANGELES. Write today for our catalog sheets and price list. We sell to Jobbers only—no consumers.

OVER A MILLION

The above illustrates a few of our

more popular Dispensers. Informa-

tion supplied upon request about

other models soon available.

December, 1945

Say you saw it in SOAP!

USED BY WILLIONS

QUALITY **SPECIALTIES**

made better with

SONNEBORN

Petroleum Products

Leading manufacturers of many chemical specialties have long standardized on SONNEBORN white oils, petrolatums and other ing evidence of the unsurpassed Quality, Purity and Stability of these highly refined ingredients.

End-uses of some of the successful chemical specialties which are made better with SONNE-BORN petroleum products are shown. There are many others.

SONNEBORN laboratories, backed by 64 years of refining experience, are available for aid in current production problems and in the development of new products for postwar markets.

Write for TECHNICAL DATA FILES on uses that interest you.







CATTLE SPRAYS



AGRICULTURAL SPRAYS



CORN EARWORM OILS



INSECT REPELLENT CREAMS AND LOTIONS



DEGREASING EMULSIONS



CLEANING EMULSIONS



EMULSION POLISHES



PROTECTIVE CREAMS FOR INDUSTRY



ANIMAL REMEDIES



BRUSHLESS SHAVE CREAMS



SOAPS

SONNEBORN PRODUCTS FOR CHEMICAL SPECIALTIES

DEO-BASE

For Household, Cattle and Agricultural Sprays, De-greasing, Cleaning and Polishing Emulsions.

PETROMIX No. 9 na. Cleaning and Polishing Emulsions. for Degreasing, Cleaning and

TRI-OL For Brushless Shave Creams, Soapless Oil Shampoos, and Skin Cleansers.

SULPHONATED OILS

For Agricultural Sprays.

PETROLATUMS U. S. P. For Insect Repellent Creams, Animal Remedies, Pro-lective Creams for Industry.

PROTOL for Corn Earworm Oils.

SPRAY STOCK "A" for Activities.

WHITE MINERAL OILS

For Animal Remedies and Protective Creams for For Insect Repellent Lotions and Animal Remedies. PETROBLEND CARNATION for Protective Creams for Industry,
Soaps and Brushless Shave Creams.

KLEAROL for Cattle Sprays and Emulsion Polishes.

SPRAY STOCK "A" for Agricultural Sprays.

- WHITE OIL AND PETROLATUM DIVISION -

SONNEBORN SONS, INC.

88 Lexington Avenue, New York 16, N. Y.

Refineries: Petrolia and Franklin, Pa.

Branch Offices: Chicago, Baltimore, Philadelphia and Los Angeles

Stocks Carried in Principal Cities

In the Southwest: Sonneborn Bros., Dallas I, Texas

CLIFTON PRESENTS ITS

3 ACES

For Everybody — Every Purse — Every Place

In the Soap Dispenser Field

Simple - No intricate mechanisms to get clogged up or get out of order. Sturdy — Built to stand hard use for a long time. Extra glass bowls



only a few cents each. Economical -Exceptional value in a low priced dispenser. Easily Cleaned. The 12-sided glass bowl makes it easy to grasp when filling.



Fool proof, trouble proof, cannot leak, clog or get out of order. No one ever heard of a pendulum getting out of order. It just swings and

swings. The Tiltype is built on the same principle, which accounts for its long life. Nothing to wear out or get out of order. No spout to unscrew when filling.

Fills from the top. Black enameled metal cap. Globe and metal parts cemented together. Also ance. Reasonably priced.



furnished detachable if desired. 15 oz. capacity. Modernistic in appear-

For the Liquid Soap Jobber

LIQUID SOAP CONCENTRATE

Just pour into water—no stirring—no heating

SOAP BASE If you make your own liquid soap

LIQUID SOAP For those who sell it straight

CLIFTON CHEMICAL CO., INC.

246 Front Street

New York City

December, 1945

Say you saw it in SOAP!

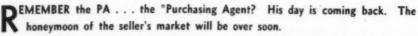
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When Do We Celebrate





How soon? In the case of Essential Oils, as soon as short supplies of those oils originating in the overseas producing areas return to near-normal.

When that day comes (and the sooner the better) the PA will be right back in the saddle again, demanding quality as well as quantity, demanding full value, demanding service with a capital S for swift.

Thanks to America's PA's from MM&R

MMGR takes this opportunity to thank the purchasing agents of America for their splendid cooperation and understanding through four trying years.

Sometimes we couldn't supply your needs fully, sometimes the "superior MM&R service" took a shellacking, sometimes we had to tell our PA friends, "Sorry, we cannot fill your needs now."

But most of the time, if the real McCoy wasn't available, there was a solution—an excellent MM&R Replacement Oil, or a suggestion that helped a harried PA out of a dilemma.

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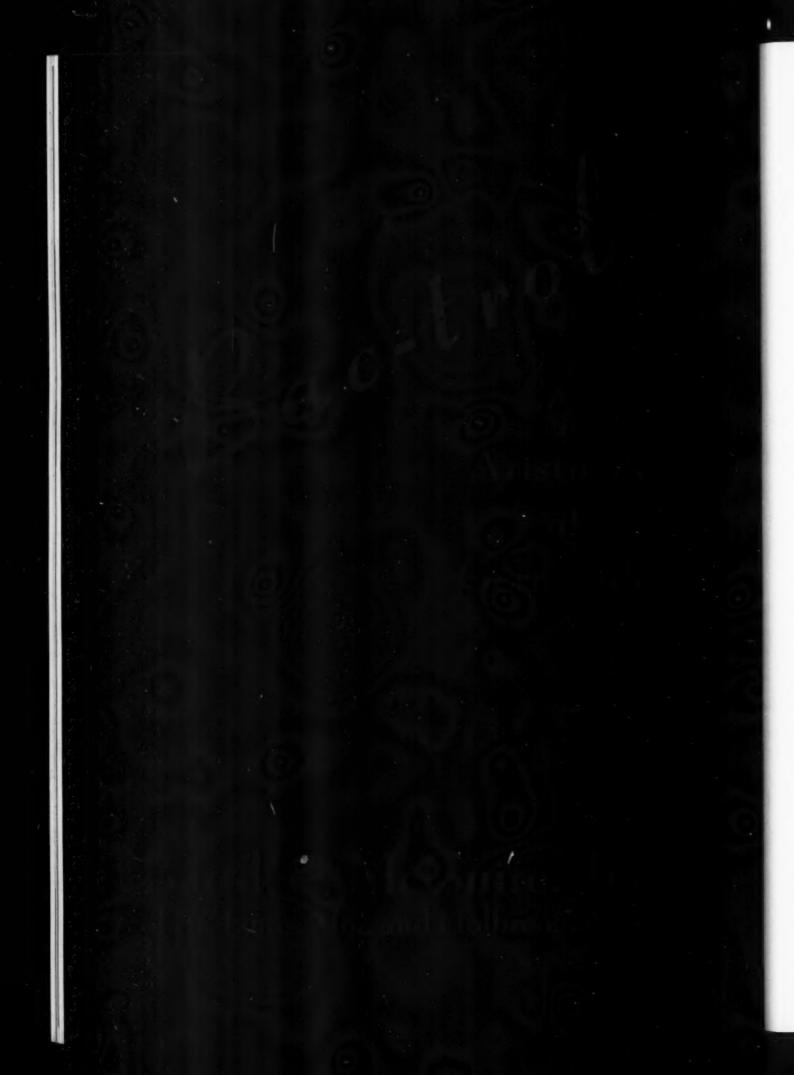
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A SECTION OF SOAP

Official Publication National Association of Insecticide & Disinfectant Manufacturers

TITH the war over, 1946 will become the first season since 1941 under which insecticides as well as a host of other goods will be marketed without war-time restrictions. Competition in finished insecticides, as well as in toxicants, will probably take on the aspects of a firstclass scramble. Many new insecticides will come to market, some of which are doomed to failure almost before they start. Some will base their claims on DDT, some will be aerosols, some powders, others will be the timetested pyrethrum, synthetic or combination products. Confusion is likely to be the lot of the retail dealer when he undertakes along about next May to explain to Mrs. Doodlehopper just what is and is not new in fly and roach killers. All told, from the marketing angle, 1946 bids fair to be a humdinger in insecticides.



OME of the smoke appears to be clearing away on the DDT horizon. Many of the supposedly public-spirited individuals and organizations who have undertaken to advise the dear old public on DDT. -and incidentally clamber on the DDT publicity band wagon, - seem to have fallen by the wayside, temporarily at least. Maybe these,—and not forgetting also the U.S. Public Health Service and the Better Business Bureau, - have since unearthed the facts and now realize how far off the beam they wandered. At any rate, the publicity glamour of DDT appears a trifle worn and the publicity clamor accordingly somewhat subdued.

Now comes the insecticide industry's turn to go to bat and begin to undo the damage which has been done to DDT in the public mind by a lot of publicity-seeking opportunists. As an insecticide material, DDT is unquestionably here to stay. Therefore, the time to begin setting the public straight on DDT is now. Inasmuch as most of the prior publicity had to do with household insecticide applications of DDT, as contrasted with agricultural uses, we feel that this puts the problem right on the doorstep of the National Association of Insecticide & Disinfectant Manufacturers.



PYRETHRUM buying for shipment over the next four months from Kenya to the United States has been heavy. In fact, American demand indicates that all available pyrethrum will be taken up quickly and the situation may reach a point where in a few months some sort of allocation by the Kenya pyrethrum authorities will be necessary.

The active demand for pyrethrum at this time for civilian needs is significant. In spite of the large part of the market being supplied by synthetic toxicants and the rise of DDT, anticipation appears to be that the consumption of pyrethrum will be greater than in normal pre-war years. This is being interpreted as a confirmation of war-time predictions that a greatly broadened insect consciousness in America is leading to an expanded market for insecticides, especially household insecticides involving the idea of sanitation. And it would appear that in such expansion,—the extent of which will not be measurable with any degree of accuracy until next fall rolls around,-insecticide manufacturers are firm in their belief that pyrethrum will apparently continue to play as important a part as it did in pre-war insecticide markets.

N. A. I. D. M. MEETS IN NEW YORK



FRIAR THOMPSON



ARTHUR PABST



FRANKLIN C. NELSON



HE 32nd annual meeting of the National Association of Insecticide & Disinfectant Manufacturers is being held December 3 and 4 at the Commodore

Hotel, New York. Owing to the large number of industry problems on the schedule for discussion, the program calls for relatively few speakers from outside of the Association membership. The main section of the program is divided into three forums covering the general subjects of insecticides, disinfectants, and sanitary products. Friar Thompson, Jr. of R. J. Prentiss & Co., New York, is scheduled as general chairman of the forum sessions which begin Monday afternoon, December 3. Discussion leaders for the three groups are listed as Frank Nelson of Stanco, Inc., Bayway, N. J., for insecticides, C. L. Weirich of the C. B. Dolge Co., Westport, Conn. for disinfectants, and Arthur C. Pabst of the Socony-Vacuum Oil Co., New York, for sanitary specialties.

Henry A. Nelson, president of the Chemical Supply Co., Cleveland, and president of NAIDM, in his annual address delivered Monday morning, December 3, pointed out the wholly new conditions under which the general sanitation supply industry must operate in the chaos of the postwar markets and called upon the industry to throw off its previous conception of the market and to meet the new conditions with thinking geared to new needs. H. W. Hamilton of the White Tar Division of the Koppers Co., Kearny, N. J., NAIDM secretary, stated in his annual report that the

past year had been the most active in the 32 year history of the Association with a wide multiplication of problems brought on by the end of the war. Both addresses are published in full elsewhere in this issue.

Among the leading speakers scheduled exclusive of those listed to take part in the forum discussions are W. G. Reed, Chief, Insecticide Division, U. S. Department of Agriculture on "Insecticide Law Enforcement"; Ray L. Cuff of the National Live Stock Loss Prevention Board on "The Future of Livestock Sprays"; John B. Gordon, NAIDM Washington representative on "Washington Today"; W. C. Gagley, State Chemist for the State of Michigan on "Insecticide Labeling"; Dr. J. O. Perrine, assistant vice-president of the American Telephone and Telegraph Co. on "Concerning New Things Electrical." Dwight Michener, assistant director of research for the Chase National Bank, New York, is to talk on "What's Ahead for Business?" W. J. Zick of Stanco, Inc. former NAIDM president and chairman of the legislative committee is scheduled to review the state and federal legislative situation over the past year.



C. L. WEIRICH

C. Nelson, chairman of the insecticide forum, and C. W. Weirich, chairman of the disinfectant forum.

Taking prominent roles on the program for the annual N.A.I.D.M. meeting will be Friar Thompson, general chairman of the scientific forum, Arthur Pabst, chairman of the sanitary products forum, F. The general program is in charge of A. W. Morrison of the Socony-Vacuum Oil Co., entertainment in charge of Charles Opitz of John Opitz, Inc., registration in charge of D. W. Lynch of John Powell & Co. Group luncheons are being held each day of the two-day meeting which closes with an informal dinner on Tuesday evening, December 4. Meetings of

the Board of Governors and various scientific committees were held Sunday, Dec. 2 prior to the regular meeting. An election of officers is scheduled for Tuesday afternoon, Dec. 4.

REPORT OF THE PRESIDENT

By HENRY A. NELSON



HE war is over and American industry faces a new world,—a world of problems so vast that they stagger the imagination. Many of these problems

have the same old familiar names, inflation, deflation, depression, unemployment, strikes. But these problems have been faced before and solved by industry. They can be licked again, but in licking them, industry will be forced to abandon many obsolete notions.

In business today, there are mainly just two kinds of people, those who pursue their little courses and who think their little thoughts, and those who rub their eyes and say: "What do we do now?" The former will go right on hugging their petty prejudices and enjoying their age-old antagonism to ideas which might disturb their status quo. The latter,—and how few there are,—will constantly remember that from now on it will be necessary to work out painstakingly many new ways of conducting business.

With the return to peace, keen competition will come soon again, when consumers' demand slackens off and salesmen take to the road once more in increasing numbers. In the meantime OPA insists upon prewar prices to hold down inflation. It is significant that some of the largest manufacturers in the country are preparing to offer new production at prewar prices despite increases in costs. They are counting on volume. They have seen during the war years what maximum

production can do to lower costs, and they realize that the lowest possible prices are the key to a permanent prosperity.

In the insecticide industry, "little business" will be confronted with several large newcomers. Up to this writing the aerosol "bomb" for instance, can be produced only by firms having the costly machinery for making and filling the containers. Several companies who prior to the war were engaged in the manufacture of electrical appliances, or other large-scale mechanical production, have now added insecticide departments and are marketing their aerosol bombs aggressively through their long established trade outlets. However, developments are now under way which may enable "little business" to fill its own aerosol containers before long.

The sudden release by WPB of DDT brought about so much confusion that the insecticide industry for weeks on end has been in a state of turmoil trying to bring order out of the chaos caused by conflicting claims on the part of many misinformed people. Literally thousands of individuals throughout the land, set themselves up overnight as manufacturers of DDT sprays and rushed into the market. It was inevitable that some of these should be "gyp" products. It is here that the NAIDM, through timely information to its members, enabled them to avoid costly mistakes and probable federal prosecution at a later date. Never before has membership in the NAIDM paid such handsome dividends to both "big"



HENRY A. NELSON

and "little business" alike as it has during the war years,—and as it will continue to pay in the years just ahead.

There is every reason for "little business" to be optimistic, provided we as individuals have the will to succeed. The majority of new industrial plants, erected during the war, have maintained a high degree of sanitation. Others had to follow suit in order to retain their working forces. Likewise, unions will not permit unsanitary conditions in plants today. New schools will be built; hospitals everywhere are contemplating new additions to their buildings; institutions of all kinds are overcrowded and are clamoring-for larger quarters. All this means increased markets for the products of our industry. There will be many new cafes, restaurants, amusement places, etc. With gasoline restrictions lifted and new cars coming off the assembly lines soon, we may expect the establishing of more small hotels, tourists courts, etc. which will need cleaning compounds, insecticides, disinfectants and the like. The "little businessman," through closer personal contacts, will be able to serve these numerous new customers in a way that is bound to result in more orders.

But if the smaller business is to succeed in the new competition, it must take a leaf out of the book of large business. Salesmen must be trained in the art of selling. They must know their products, and they must present them intelligently. It is the one thing that little business seldom seems to think important enough to do anything about. It is often pitiful to hear some salesmen, representing smaller firms, present their wares to buyers who often know more about the subject of sanitation than do the salesmen themselves. How can any one expect to get business under such conditions? It will pay you to make a few trips with your salesmen and find out first hand how they represent you and your

products. You'll agree then that there is much room for improvement.

"Little business" may not have the necessary funds to conduct extensive research. It can, however, avail itself of the scientific information obtained under the auspices of trade associations like our own. Moreover, most every manufacturer of raw materials and finished products supplies his trade with various kinds of selling aids so that even the smallest individual in our industry can have at his fingertips the results of many years of costly research. Properly used, it constitutes invaluable sales ammunition.

So long as the American system of free enterprise remains in effect, so long will "little business" prosper in direct proportion to the efforts put forth by its owners. There is no easy road to success. The qualities required are the old-fashioned virtues of patience, industry, forbearance and cooperation.

For over thirty years, the members of this association, big business and little business alike, have worked together successfully in furthering the interests of the household insecticide, disinfectant and allied industries and in the interests of the consumer of these products of sanitation. I sincerely hope that in the uncertain years immediately ahead of us that this cooperation for the good of all will continue and that the results of these united efforts may be even more fruitful than they have been in the past.

REPORT OF THE SECRETARY

By H. W. HAMILTON

URING the past year, the executive offices of the National Association of Insecticide & Disinfectant Manufacturers have seen greater activity than ever before in the history of the Association. Developments directly affecting the affairs of the entire insecticide, disinfectant and sanitary products industry have taken place on a broad scale. The end of the war with its numerous complications brought numerous problems calling for prompt NAIDM action. Accordingly, 126 association bulletins consisting of many pages each and numerous enclosures were sent out during the year. The speed with which essential information was sent to our membership, we feel, was of great value and utmost importance.

The executive offices have been kept open and functioning without interruption during the year. This service has been of unquestioned aid to our membership. But the help of every member is needed to maintain this service. Our Association is a mutual organization that depends upon the

voluntary assistance of members in conducting many of its activities. Many members have spent their time and money to work on the various projects of research, legislation, publicity, programs, and policies. There are many problems still unsolved and each of you should do your part in helping wherever possible. As a member, you are a joint owner, not just a subscriber.

The executive offices have continued the distribution of the Official Test Insecticide and this year a new Experimental O.T.I. has been distributed to a group of collaborating laboratories in connection with the proposed revision of the Peet-Grady Method. It has also distributed committee data, and worked with federal, state and municipal government agencies.

When the previous report of the secretary was written, the midyear convention of 1945 had been cancelled, and the prospects for this annual meeting were very doubtful. As the present report is being written, the war is over and the men who did the fighting



H. W. HAMILTON

are coming home. Other men are formulating the peace. Out of all the pain, suffering, and economic disruption, we are now to reap the harvest whatever it may be. First, must come the care of those who come back physically and mentally maimed forever. Next, comes the job of again coordinating a war-disrupted world, completely "cockeyed" and disjointed. Out of this, an effort must be made to hold fast to the ideal for which the war was fought, and won, but not yet paid for in physical and mental sufferings of many peoples.

Progress always seems to be accomplished through pain and suffering. There is so much of both in war

(Turn to Page 167)

Release Data on German Insecticides

HE issuance recently of two executive orders releasing scientific information from government-sponsored research and enemy sources is destined to have a marked effect on the future of insecticides and the sanitary chemical field. In spite of the possible widespread influence that the release of this information may have, it has received practically no publicity and it is probably that few research and production men in search of new post war products are aware of these facilities. In the accompanying article (see page 138) L. B. Kilgore has prepared an excellent review of some of the products used by Germany in meeting pest control problems.

Publication of the information contained in this and subsequent articles was made possible by the two executive orders referred to above. On June 8, 1945, Executive Order 9568 providing for the release of scientific information was promulgated. It specified that "certain scientific and technical data withheld from public dissemination for the purpose of national military security" would be released. The Director of War Mobilization and Reconversion was authorized to review all scientific and technical information which "has been developed by, or for, or with funds of any department or agency of the Government and is now classified as secret, confidential, restricted, or by other comparable designation." It further provided that the President could declare certain scientific information to be in a "closed field of information." All other departments and agencies were to furnish the Director with information that could be considered for release. Only the Secretary of War and/or the Secretary of Navy would be the final arbiters as to whether the national military security permitted scientific information in question to be released. Otherwise, the decision about final release was up to the Director.

Executive Order 9568 further provided for the establishment of an inter-departmental board to be known as the "Publication Board" which shall consist of the "Director as Chairman, the Attorney General, the Secretary of the Interior, the Secretary of Agriculture, the Secretary of Commerce, and the Secretary of Labor, each of whom may designate an alternate to act in his stead." It further provided for certain interested agencies to designate liaison members for the Board, and the function of the Board is specified as "to bring to the attention of the Director any information within scope of this order and to advise with him concerning its release for publication." Finally it provided that committees could be established, composed of civilian or military personnel to aid the Board and/or the Director.

Because very little was done in the way of releasing information and also to provide for release of information from enemy sources, a second Executive Order,-No. 9604 was issued on August 25, 1945 which extended and amended Executive Order 9568. The August 25th order provided that "subject to the requirements of national military security, there shall be prompt, public, free and general dissemination of enemy scientific and industrial information." Enemy scientific and industrial information is defined "to comprise all information concerning scientific industrial and technological process, inventions, methods, devices, improvements, and advances heretofore or hereafter obtained by any department or agency of this Government in enemy countries regardless of its origin, or in liberated area, if such information is of enemy origin or has been acquired or appropriated by the enemy."

All the procedures outlined in the previous Executive Order, namely, authorization to set-up the Board as well as designation of material necessary to the national security was still provided in the newer of the two edicts. It still emphasized that the Secretary of War and the Secretary of Navy had final authority to decide whether national military security permitted the release in whole or in part of enemy scientific or industrial information.

Accordingly there was established the Office of the Publication Board composed of John A. Snyder (Director of War Mobilization and Reconversion) as Chairman, Henry A. Wallace (Secretary of Commerce) as Vice-Chairman, and John C. Green as Executive Secretary. The operating functions covered by the orders are delegated to the Department of Commerce with the National Inventors Council to implement the duties provided. The new agency has been dubbed for short OPB in the manner of abbreviation of all wartime Government agencies. This agency is now working frantically on the declassification of huge numbers of reports obtained from enemy sources, particularly German, by the Technical and Industrial Intelligence Committee (a joint organization of the old Foreign Economic Administration and the military forces).

In addition to enemy information it may soon be possible that all work done by the various Government agencies on DDT, insect repellents and related materials will soon be available for the sanitary chemicals industry. Incidentally there is a tremendous amount of material on toxicity, chemical and physical properties, unique methods of formulation and application on many materials upon which research was conducted during the war years.

Perhaps of most sensational interest and most important because of the timeliness are the very thorough and for the most part accurate reports on the German chemical industry. The reports can be obtained from the office of the Publication Board, Department

(Turn to Page 169)

NEW GERMAN INSECTICIDES

HE new products developed by the German scientists since about 1939 in the insecticide field may be conveniently divided into two main classes: (a) those for direct military use, and (b) those for indirect military and civilian use. In describing these new products no attempt is made here to evaluate them as it is impossible to correlate the data obtained in their entomological tests with those given by the methods used by American insecticide manufacturers. In general, the tests on insects as well as the toxicological examinations of warm-blooded animals were of such limited and haphazard fashion that the investigators were unable to establish reliable conclusions. However, the varied types of compounds which were investigated and were claimed to have some degree of insecticidal activity, as reported here, are of considerable inter-

Insecticides and Insect Repellents for German Military Use

HE chief German Military use for an insecticide was to combat body lice and bed bugs. No evidence was found of the use of a space spray such as the American "aerosol" bomb dispersion. Protection against body lice was accomplished mainly by impregnating the clothing, including underwear, with a water emulsion of a mixture called "Lauseto." This was a water miscible concentrate, the active principle of which was the impure residue obtained by reacting a 20% excess of both benzene and chlorbenzene with chloral or with chlorinated acetal (whichever was available) under the conditions of the Baeyer reaction. A brown liquid resulted due to the presence of the unused excess reactants which also acted as co-solvents. It

*See Report Nos. 240, 252 and 360, Office of Publication Board, Department of Commerce. The specialists were Lowell B. Kilgore, Kilgore Development Corp., Lt. Col. J. E. Shadel, M.C., Dr. Stanley Hall, U.S.D.A. and Dr. J. F. Curtis.

By Lowell B. Kilgore

The following resume of new synthetic insecticides and insect repellents developed in Germany has been compiled from the reports of specialists* sent to Germany at the request of the Joint Chiefs of Staff and now released by declassification under Executive Orders 9568 and 9604.

was emphasized that this liquid mixture of the various unidentified endproducts was easier to emulsify than the solids obtained by the use of chlorbenzene alone in the reaction. It was not evident that the Germans had assayed nor did they know the relative insect toxicity of the various compounds obtained in this mixture.

"Lauseto" (the German name for the finished emulsifiable insecticide concentrate and not to be confused with the mixture of active principles) consisted of:

A — 55 parts of the crude Baeyer condensation product; 24 parts trichloroethylene (auxiliary solvent).

B—6 parts "Lobauer" (heavy paraffin) oil; 16 parts emulsifying agent (various agents depending upon availability, were used—see Report No. 240 for details).

The "Lauseto" concentrate was prepared by heating the "B" part to about 40°C. to liquefy the emulsifying agent and the "A" solution added slowly and stirred for a few hours and allowed to stand. If water separated, it was drawn off and the "Lauseto" was ready for use. This concentrate becomes thick during long storage in the cold and some crystallization may take place, but it was claimed this did not produce any deterioration in kill-

ing power. It was directed on the "Lauseto" packages that they be placed in a warm room 24 hours before use or if the containers were metal, they be warmed by immersion in hot water before use.

"Lauseto" was used for impregnating the uniforms and under clothes to protect against lice. It was claimed to be effective for three months provided the clothing was not boiled. Washing with luke warm water, not over 60°C., was said not to reduce the efficiency. The directions given for impregnating clothing are as follows:

Three tablespoons full of "Lauseto" are put into an empty pail and 3 liters cold water poured in slowly, with stirring. A white emulsion is formed in which are placed the pieces of clothing after washing and wringing, which are allowed to remain therein for 15 minutes with kneading. They are then wrung out and dried in the air (not in an oven).

This treatment gives protection against lice for three months, so long as the clothing is not boiled. Washing with water warm to the hand does not reduce the insecticidal effect. After three months and after every boiling, they must be reimpregnated.

The liquid pressed out of the clothing is caught in a pail and used further. For each set of clothes a mixture of 2 tablespoons of "Lauseto" and 1.5 liters of water are added, but after the fourth addition the liquid is thrown away.

For the treatment of greater amounts of clothing at one time, the following consumption is calculated:

100 sets need about 3 liters "Lauseto" and 300 liters water; further 100 sets need about 2 liters "Lauseto" and 150 liters water.

To protect uniforms, coats, woolen coverings, etc., additional spraying of 1-2% "Lauseto" emulsion by means of spray guns is recom-

mended besides the impregnation of the body clothing.

A dusting powder called "Omega Powder" was prepared using the following active principle:

4% DDT and isomers mixture

34% Chalk

62% Talc

Strangely enough, this was not used to any great extent by the German army although its efficiecy was well appreciated by their scientists.

The requirements of the German army were reported to be 150 tons per month of the active principle of "Lauseto," of which the Leverkusen plant of the I. G. Farbenindustrie produced about 100 tons, the remainder being made at the Ludwigshaven (Badische Anilin und Soda Fabrik) plant.

Literally hundreds of compounds similar to DDT were made by the German chemists at the Baeyer laboratories, Eberfeld and at the Plant Protection Institute of the I. G. at Hochst (near Frankfort a.M.) in an effort to improve upon it. They claim to have placed a great deal of emphasis on the search for a new insecticide compound which would not conflict with the Geigy patent. Only two other compounds based on the Baeyer condensation reaction were developed which had an activity of the order of "Lauseto":

- (1) "Me 1700" chemically designated as 1,1-di-(p-chlorophenyl) 2,2-dichloroethane, and
- (2) "Ho 2474" or Fluorgesarol" known chemically as 1,1-di-(p-flurophenyl)-2,2,2-trichlorethane. Both of these compounds had been tested by the Department of Agriculture and were found to possess insecticidal activity comparable with our DDT against certain insects.

The Germans did not produce "Me 1700" on a large scale but they had experimented with a manufacturing process involving the use of dichloracetal made by the direct chlorination of alcohol which produced a 80% yield. Since this process did not use chloral they held that it did not infringe the Geigy patent. The various entomologists interviewed differed as to the efficacy of "Me 1700" but

they showed data approximating DDT activity against houseflies, adult mosquitoes and certain beetles. It was admittedly not as effective as DDT against moths, body lice and bed bugs.

THE fluorine analog, Ho 2474 or Fluorogesarol," was manufactured at Hochst I. G. Farbenindustrie plant near Frankfort a./M. at the rate of about 40 tons per month. It was used in the north Africa campaign where samples were obtained during the war. This is a very expensive compound compared to DDT due to the high cost of making fluorobenzene.

Ho 2474 was made by condensing fluorobenzene with trichloroacetal in the presence of chlorosulfonic acid. The expensive fluorobenzene was made by diazotizing aniline and treatment with anhydrous hydrofluoric acid. This reaction is very hazardous and because of the corrosive nature of the reactants requires the use of special apparatus. It is doubtful whether the product warrants the expense and hazard as the figures shown by the Germans were not at all convincing that the fluoro analog was superior to DDT with the possible exception of rapidity of action onset. 'The residual effect, however, was acknowledged to be of shorter

The Ho 2474 was compounded to form a concentrated product trade named "Gix" by the Baeyer sales division of the I. G. Farbenindustrie. "Gix" is composed of 60% Ho 2474 (1,1 - di (p-fluorophenyl) - 2,2,2 - trichloroethane), 20% "Lobauer Gasol" (a petroleum fraction, boiling range, 240-360°C.) and 20% spreader, Ho 2406N (an emulsifying agent of the polyhydroxyethylated iso-cotyl phenol type). It was noted that the "fluorogesarol" was more soluble in oil than DDT. The details of the manufacturing process are given in the reports of reference.

As evidenced by the above composition, "Gix" was compounded to be readily dispersible in water. Even before the war it was unthinkable that a valuable petroleum fraction like kerosene would be employed as a diluent for a fly spray. Accordingly, "Gix" was diluted with water to form a

water base or residue spray. A 3% emulsion was used for "atomization" or space spraying and only a 0.5% emulsion for spraying walls and ceilings. It is noted at once that these dilutions are the reverse of the results obtained from our war research using a hydrocarbon base. Using their test method, which will be described in the next article of this series, they were able to obtain a complete knock down of houseflies in 15 minutes and 100% kill in 24 hours using 2 c.c. of a 3% emulsion of "Gix" per cubic meter. A 5% emulsion of "Gix" in water was recommended for impregnating clothing. After immersion they are wrung out and allowed to dry in the open air. Such treated cloths will kill flies or mosquitoes alighting on them for several months according to the directions provided.

Since the chemists of the Plant Protection Division of the I. G. Farbenindustrie at Hochst had developed "Gix," they were very anxious to show that the sharp increase in cost of its manufacture was justified by its greater efficiency against insects. The results of the tests conducted against several species of insects including the gypsy moth, brown tail moth, grain weevil, cockroaches, red scale and houseflies showed that the fluorgesarol mixture containing 3% "fluor-DDT" (Ho 2474) had insecticidal properties equal to Gesarol containing 5% DDT and that the former was much more rapid in its action in most cases. It was also brought out that the Fluorgesarol has less long-lasting action than Gesarol, a fact which they turned to advantage by claiming less liability to toxic residue effects in foods. However, the data did not seem to warrant the extravagant claims made for it by the Hochst chemists.

In addition to the above compounds of the DDT-type made by the Bayer reaction, a new series of compounds, the mixed sulfones, were studied in great detail. The most promising member of this series, loosely termed "Lauseto-neu," was a mixture of p-chlorphenylchloromethyl sulfone and phenylchoromethyl sulfone. These new compounds are definitely superior

(Turn to Page 169)

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The Residual Toxicity of DDT

Influence of Moisture and Temperature on the Residual Kill of DDT

By Harvey L. Sweetman

Massachusetts State College

DT is known to have a longerlasting residual effectiveness than other commonly used insecticides. While field tests against most insects have shown relatively short effective residual periods (Wiesmann, 1943a; Lingren & Boyce, 1944; Stevenson et al, 1944; Harman, 1945; and others), a few workers have reported effective residual periods against field pests of several weeks or more (Driggers, 1944; Fleming & Chisholm, 1944; Langford & Cory, 1945; Osburn, 1945). Much longer periods of residual effectiveness in general have been reported against structural pests (Wiesmann, 1943b; Van Leeuwen, 1944; Tenhet, 1944; Cotton et al, 1944; Bushland et al, 1944, 1945; Lindquist et al, 1944, 1045; Madden et al, 1944, 1945a, 1945b; Gahan & Lindquist, 1945; Gahan et al, 1945a, 1945b; Jones et al, 1945). The writer (unpublished) has found that thorough applications of a 10 per cent DDT dust are effective immediately and have a long-lasting residual effectiveness against four common houseinvading species of ants, Solenopsis molesta Say, Crematogaster lincolata Say, Lasius niger Emery, and Tapinoma sessile Say, and the carpenter ant, Camponotua pennsylvanicus.

Chemically DDT is reported to be relatively stable at the usual temperature and moisture conditions at which it is used insecticidally. Since the residual effectiveness is much greater when used against structural pests where the physical environment

is more uniform than against field pests it suggests that temperature moisture, and light may be important factors of the physical environment that influence residual effectiveness. Harman (1945) suggests that weathering or possibly a break down into a less toxic form accounts for the loss of residual toxicity in the field. Fleck (1944) has attributed loss of residual toxicity to evaporation. Gahan et al (1945) have reported that DDT is affected deleteriously by sunlight. Bushland et al (1945) found that DDT stored at 60° C. (140° F.) for ten months lost about half of its toxicity but did not lose its effectiveness after several months exposure to the open air or when stored at 60° C. for two months. Jones et al (1945) reported that arm and leg garments treated with DDT showed no decrease in effectiveness after storage for one year.

The results reported herein deal with the influence of temperature and moisture on residual effectiveness of DDT. The experiments were conducted in a basement laboratory so that direct sunlight was not a factor in the tests. Indirect sunlight and artificial light were relatively low in intensity where the experiments were carried out. Two species of Thysanura, the silver fish, Lepisma saccharina L. and the firebrat, Thermobia domestica Pack., and the American cockroach, Periplaneta americana L. were used in these tests.

The DDT was dusted in petri dishes for testing against silverfish and

firebrats and exposed in the various environments for the desired periods. At the time of testing for residual toxicity the insects were introduced into the petri dishes containing the dust and maintained in the environment at which the dust was exposed, except the tests at 5° and 8° C. The silverfish and firebrat are inactive at these temperatures and would be killed after a few hours exposure. Therefore the test dishes were removed from these low temperatures to room conditions, 23° and 26 per cent relative humidity, at the time of testing with the insects. Low humidity is unfavorable to these Thysanura and the ill-effects of moisture deficiency could be observed after about a week. Paralysis and death following exposure to DDT occurred in less than a week (Table 10).

THE American cockroaches were exposed to the dusts at room conditions for 24-hour periods, with a few exceptions. The DDT dust was sprinkled onto circular pieces of paper towels nine inches in diameter and exposed in the various environments for the desired periods. Each sheet of paper contained approximately 0.0265 mg. of 3 per cent DDT dust. At the time of testing, the dust-treated paper was pasted onto the bottom of a dish pan, which it fitted, to prevent the roaches from crawling under the paper. Glass plates served as covers to the pans to prevent escape of the roaches. The roaches were capable of and did climb on the walls of the pans,

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but the major portion of the exposure time was spent on the DDT-treated paper. The roaches were removed to gallon glass jars containing food and water after 24 hours. Occasional roaches were paralyzed or killed during the 24-hour exposure.

Preliminary tests with the roaches demonstrated that large nymphs and adult females were much more resistant to the DDT than other stages (Table 2), while young nymphs from hatching to about half developed were readily killed (Table 1). Adult male roaches were used in the tests except where shown in the tables.

Apparently insects running over a treated surface removed or otherwise reduced the residual toxicity of the DDT (Table 1). Three series of roaches and two series of firebrats are listed in the table. In the first series all of the adult roaches were killed in seven days, a second lot on the same surface showed no ill-effects after several days on the treated surface, except for small nymphs. In the second and third series of roaches, exposures to the treated surfaces for one and three and one-half hours respectively produced about as much or greater mortality as much longer exposure of succeeding lots of roaches. The first series of firebrats showed similar results, 93 per cent being killed in three days, 60 per cent of the second lot between the fourth and eleventh days, and only 5 per cent of the third lot following eleven days of previous exposure of the treated surface to insects. In the final test, a two-hour exposure of the insects failed to produce any mortality, but the residual effectiveness of the DDT was so reduced that only 3 per cent of the second lot of firebrats was killed in 96 hours on the treated surface. It is obvious that the effectiveness of the DDT dust on the treated surface against both roaches and firebrats decreases rapidly in the presence of insects. Perhaps the DDT clings to the insects or is otherwise changed either physically or chemically by contact with the insects. This suggests that the number of insects coming into contact with a treated surface may decidedly influence the length of the period of residual toxicity. This is in

TABLE 1

The influence on residual toxicity of repeated exposures of American cockroaches and firebrats to surfaces treated with DDT dust.

| Dust expo- | Insect expo- | M | Mortality-Per Cent | | | |
|------------|--------------|--------------|--------------------|--------------|--|--|
| sures—Days | sures—Hours | Adults | Large nymphs | Small nymphs | | |
| | America | in Cockroach | es | | | |
| 0 | Continuous | 100 | 50 | 100 | | |
| 8 | 44 | 0 | | 25 | | |
| 0 | 1 | 33 | 0 | 14 | | |
| 3 | 20 | 40 | 0 | | | |
| 4 | Continuous | 10 | 0 | | | |
| 0 | 3.5 | 58 | 0 | | | |
| 3 | 22 | 33 | 0 | | | |
| 6 | Continuous | 33 | 0 | | | |
| | I | Firebrat | | | | |
| 0 | Continuous | 93 | | | | |
| 4 | ** | 60 | | | | |
| 11 | ** | 5 | | | | |
| 3 | 2 | 0 | | | | |
| 4 | 96 | 3 | | | | |

full agreement with field tests against several species of flies.

The reduction of residual toxicity of DDT by environmental conditions as shown by mortality of roaches was tested by exposing the insecticidal dust on paper towel discs in various environments (Tables 2 and 3). It is evident in Table 2 that by this technique and the quantity of DDT used that only adult males were killed in sufficient quantity to be significant in determining the influence

of environment on residual toxicity. Exposures of the insecticide for 24 days or less are shown in Table 2, while exposures of 30, 40, and 50 days are given in Table 3. Temperatures of 37° and 34° C. reduced the toxicity of the DDT most rapidly, a 3 per cent dust producing little mortality after the 30, 40, and 50 day exposures. The roaches exposed in the 50-day tests at 37° and 34° were survivors from the 40-day tests, which were completed three weeks earlier. Previous tests had

TABLE 2

The effects of temperature and moisture on the residual toxicity of 3 per cent DDT (Geigy) dust as shown by mortality of American cockroaches from a 24-hour contact with the treated surfaces following exposure of the dust in various environments for four to 24 days.

| Temperature | Moisture | Dust expo- | | Mortality- | -Per Cent | |
|-------------|----------|------------|-----|------------|-----------|-------|
| °C. | Per Cent | sure-Days | | Adults | Large | nymph |
| | | | 9 | 8 | Ş | 8 |
| 34 | 80 | 5 | 0 | 0 | 0 | 0 |
| | | 10 | 0 | | 0 | 0 |
| | | 15 | 25 | 0 | 0 | 25 |
| | | 19 | 50 | 75 | 0 | 50 |
| 32 | 30 | 5 | 100 | 100 | 0 | 50 |
| | | 10 | 0 | 100 | 0 | 0 |
| | | 17 | 0 | 100 | 0 | 50 |
| | | 20 | 0 | 66 | 0 | 0 |
| 30 | 82 | 4 | 0 | 100 | 0 | |
| | | 7 | 0 | 75 | 0 | 0 |
| | | 12 | 0 | 100 | 0 | |
| | | 16 | 0 | 100 | 50 | 33 |
| 27 | 70 | 5 | 50 | 50 | . 0 | 0 |
| | *** | 10 | 0 | 100 | 0 | 0 |
| | | 15 | 0 | 0 | | 20 |
| | | 20 | 0 | 50 | 0 | 0 |
| 27 | 30 | 5 | 0 | 100 | 0 | |
| | | 10 | 100 | 100 | | 50 |
| | | 16 | 0 | 100 | 0 | 50 |
| | | 20 | 33 | 100 | 0 | 25 |
| 23 | 82 | 4 | 0 | 100 | 0 | 0 |
| 20 | 0= | 10 | 0 | 100 | 0 | 0 |
| | | 14 | 25 | 100 | 0 | 0 |
| | | 20 | 50 | 100 | | 0 |
| 5 | | 5 | 0 | 100 | 100 | 0 |
| · · | | 12 | 0 | 100 | 0 | 100 |
| | | 18 | 100 | 100 | | 80 |
| | | 24 | 0 | 100 | 0 | 0 |
| | | Averages | 17 | 83 | 4 | 25 |



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The effects of temperature and moisture on the residual toxicity of 3 per cent DDT (Geigy) dust as shown by mortality of male American cockroaches from a 24-hour contact with the treated surfaces following exposure of the dust in various environments for 30, 40, and 50 days. *The roaches that had survived the 40-day test at the same temperatures. †Accidentally, wested for 48 hours

| | dentally wetted | for 40 nours. | |
|-----------------|----------------------|-------------------------|----------------------|
| Temperature °C. | Moisture Per Cent | Dust expo- sure—Days | Motality Per Cent |
| | High M | oisture | |
| 37 | 68 | 30 | 20 |
| 34 | 80 | 30 | 0 |
| 32 | 82 | 30 | 100. |
| 27 | 70 | 30 | 60 |
| 23 | 82 | 30 | 100 |
| 37 | 68 | 40 | 0 |
| 34 | 80 | 40 | 0 |
| 32 | 82 | 40 | 100 |
| 27 | 70 | 40 | 100 |
| 23 | 82 | 40 | 100 |
| 37* | 68 | 50 | 20 |
| 34* | 80 | 50 | 60 |

Low Moisture

50

30

30

40

40

40

41

50

50

70

82

30

26

30

30

26

30

30

indicated that roaches were killed more readily in repeat tests. The relative humidity was high at both these temperatures. Temperatures of 32° and 27° with either high or low humidity showed little reduction in mortality through the 40-day test, but a definite decrease in effectiveness after 50 days. The test samples exposed at 23° and 5° produced high mortalities of male roaches for the duration of the tests except for one sample at 5° for 50 days. One test disc at 5° for 41 days was accidently wetted for two days, during a part of which water

27

23

27 23 5

32

32

27

23

drained over the disc. No reduction in effectiveness occurred.

0

40

100

100

100

100

100

100

100

100

100

40

20

20

These results emphasize the lasting qualities of the residual toxicity of a 3 per cent DDT dust. Stronger concentrations, as will be shown later, remain effective for longer periods under the same conditions. Since the roach tests were conducted at the same temperature and moisture following the dust exposures, any influence of physical conditions would have taken place during the dust exposure period. There was slight indication that residual toxicity as measured with roaches de-

clined more rapidly in the moist environments.

A few roaches were exposed on surfaces treated with 10 per cent DDT dust (Table 4). The exposure periods of this dust were too limited to be significant, but a comparison of tables 2 and 4 indicate that the 10 per cent. dust was at least as effective.

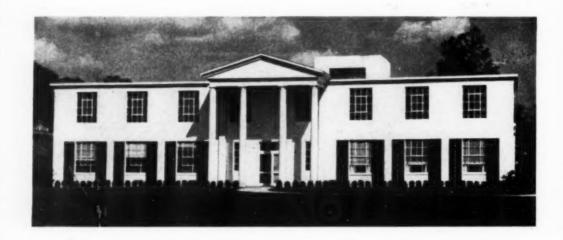
HE toxicity of a 3 per cent DDT dust to firebrats is shown in Table 5. The method of applying the dust was not as efficient in producing an even layer of the dust as desired, which may account for some of the variability of the results. Nevertheless, the effects of temperature and moisture on the residual toxicity of the insecticide are evident. High temperature and moisture consistently reduced the toxicity when compared on the basis of total average mortality, the dusts exposed in the three high temperature conditions with high moisture producing the least mortality. The environment with the highest humidity, 34°, showed an average mortality of only 49 per cent. These three environments were the most favorable for the firebrat (Sweetman, 1938). The dry environment at 32° and all lower temperatures regardless of humidity failed to reduce seriously the effectiveness of the insecticide as measured by mortality of firebrats. Since the results are consistent with those with roaches (Tables 2 and 3) it suggests that high humidity, at least in combination with high temperature has a deleterious effect on residual toxicity of DDT. Since these physical conditions are within the normal range at which insecticidal applications are exposed, it shows that environmental conditions can be expected to influence the residual toxicity of DDT in practice.

The effects, if any, of temperature and moisture on the residual toxicity of a 10 per cent dust against the firebrat over periods of 22 and 40 days are not evident (Table 6). This suggests that much of the destructive effects of high temperature and moisture on DDT can be temporarily overcome by increasing the concentration. A 10 per cent concentration is now commonly used for structural pest concentration used for structural pest con-

TABLE 4

The effects of winter room conditions, 23° C. and 26 per cent relative humidity, on the residual toxicity of 10 per cent DDT (du Pont) dust as shown by mortality of American cockroaches from contact with the treated surface following exposure of the dust for three to 14 days.

| | | | Morta | lity-Per Ce | ent |
|-------------|--------------|----|-------|-------------|--------|
| Dust expo- | Insect expo- | A | dult | Large | nymphs |
| posure—Days | sure—Hours | \$ | ð | Q | 8 |
| 3 | 24 | 75 | 100 | 0 | 0 |
| 7 | 7 | 0 | 100 | | 0 |
| 11 | 9 | 0 | 100 | 0 | 0 |
| 14 | 12 | 50 | 100 | 0 | 66 |



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trol, but the sensitivity of some plants to DDT does not indicate that increased concentration of the insecticide will be the answer to offset loss of residual toxicity in use of DDT against some field pests.

The effects of high temperature and moisture on the residual toxicity to the firebrat of a series of concentrations of DDT are given in Table 7. As shown earlier (Tables 3 and 5) the residual toxicity of low concentrations, 3 per cent and 5 per cent, gradually declines over a period of time in this environment. The 10 per cent and higher concentrations show little decrease in effectiveness against the firebrat over a period of 70 days, although it is possible that the actual toxicity may have decreased considerably. Long time exposures of DDT dust at this concentration have not been tested against the American roach.

A further analysis of the effectiveness of various concentrations of DDT against the firebrat are shown in Table 8. It has been reported that dilute concentrations of DDT are more effective than full strength DDT. The results in Table 8 do not bear out this idea, although it can be confidently expected that with increased concentrations an effective point will be reached where further concentration is of no value in so far as immediate effectiveness against a specific pest is concerned. The required number of hours for paralysis or death as given in the table are greater than the actual time consumed, since an individual insect might show paralysis or die shortly after being observed and several hours before the next observation. The time necessary to produce paralysis and death occurred in reverse order to the concentration of the DDT. The 10 per cent concentrations were prepared by two different firms. While the time to produce paralysis by the two products is almost identical, the killing time is one-third less with one dust.

SINCE the preceding experiments (Table 5) had shown that moisture played a role in reducing residual effectiveness of DDT, several insecticidal dusts were tested at a low temperature, 23°, to see what effect, if

TABLE 5

The effects of temperature and moisture on the residual toxicity of 3 per cent DDT (Geigy) dust as shown by mortality of firebrats from continuous contact with the treated surfaces following exposure of the dust in various environments from zero to 60 days.

| Temperature ° C. | Moisture Per Cent | Dust expo- sure—Days | Mortality Per Cent | Average-mortal- ity—Per Cent |
|------------------|----------------------|-------------------------|-----------------------|---------------------------------|
| | | High Moisture | | |
| 37 | 68 | 3 | 100 | |
| | | 7 | 40 | |
| | | 9 | 80 | |
| | | 12, 15 | 100 | 60 |
| | | 18 | 80 | |
| | | 40, 41 | 0 | |
| | | 50 | 100 | |
| | | 60 | 0 | |
| 34 | 80 | 3 | 60 | |
| | | 7, 9 | 40 | |
| | | 12 | 80 | |
| | | 15 | 20 | |
| | | 18 | 80 | 49 |
| | | 40 | 50 | |
| | | 41 | 0 | |
| | | 50 | 20 | |
| | | 60 | 100 | |
| 32 | 82 | 3, 7, 9 | 100 | |
| | | 15, 20 | 80 | |
| | | 40 | 40 | 62 |
| | | 41 | 60 | |
| | | 50 | 80 | |
| | | 60 | 20 | |
| 27 | 70 | 3-41 | 100 | |
| | | 50 | 80 | 98 |
| | | 60 | 100 | |
| 23 | 82 | 40 | 80 | |
| | | 41, 50, 60 | 100 | 95 |
| | | Low Moisture | | |
| 32 | 30 | 0, 3, 7, 9, 15 | 100 | |
| | | 20 | 80 | 90 |
| | | 40, 41, 50 | 100 | |
| | | 60 | 20 | |
| 27 | 30 | 0-60 | 100 | 100 |
| 23 | 26 | 3-60 | 100 | 100 |
| 8 | * * | 0-20 | 100 | 100 |
| 5 | * * | 40-60 | 100 | 100 |

any, moisture might have on residual effectiveness of these dusts (Tables 9 and 10). Since a structural pest, the silverfish, was used in the tests, insecticides that had proven useful against this pest and an inert material were used. Table 9 shows results comparable

to summer conditions and Table 10 those comparable to winter conditions in buildings. The DDT and sodium fluoride dusts produced 100 per cent mortality up to 30 days exposure of the dusts in both environments. The sodium fluoride dust did not cake so as

TABLE 6

The effects of temperature and moisture on the residual toxicity of 10 per cent DDT (du Pont) dust as shown by mortality of firebrats from continuous contact with the treated surfaces following exposure of the dust in

| Temperature ° C. | Moisture Per Cent | Dust expo- sure—Days | Mortality Per Cent |
|------------------|----------------------|-------------------------|-----------------------|
| 37 | 68 | 22 | 100 |
| 34 | 80 | 22 | 100 |
| 32 | 82 | 22 | 100 |
| 32 | 30 | 22 | 100 |
| 27 | 70 | 22 | 100 |
| 27 | 30 | 22 | 100 |
| 23 | 26 | 22 | 100 |
| 5 | | 22 | 100 |
| 37 | 68 | 40 | 100 |
| 32 | 82 | 40 | 100 |
| 32 | 30 | 40 | 100 |
| 23 | 26 | 40 | 100 |



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TABLE 7

The effects of high temperature and moisture, 37° C. and 68 per cent relative humidity, on the residual toxicity of different concentrations of DDT dust as shown by mortality of firebrats from continuous contact with the treated surfaces following exposure of the dusts for five to 70 days.

| Concentration of DDT | Dust expo- sure—Days | |
|----------------------|-------------------------|-----|
| Geigy 3% | 5-15 | 100 |
| | 20-30 | 60 |
| | 40 | 100 |
| | 50 | 80 |
| | 60-70 | 0 |
| Geigy 5% | 5-10 | 100 |
| | 15 | 80 |
| | 20-30 | 100 |
| | 40 | 80 |
| | 50 | 60 |
| | 60 | 20 |
| | 70 | 0 |
| Geigy 10% | 5-50 | 100 |
| | 60 | 80 |
| | 70 | 100 |
| du Pont 10% | 5-70 | 100 |
| Merck 100% | 5-70 | 100 |

TABLE 8

The relationship between concentration of DDT dust and mortality of firebrats.

| Concentration of DDT Per Cent | Average number of hours to paralyze | Average number of hours to kill |
|-------------------------------------|--|--|
| Geigy 3 | 47 | 165 |
| Geigy 5 | 27.5 | 123 |
| Geigy 10 | 17.7 | 76 |
| du Pont 10 | 18.7 | 52 |
| Merck 100 | 12.7 | 37 |

TABLE 9

The effects of summer room conditions, 23° C. and 82 per cent relative humidity, on the residual toxicity of several insecticidal dusts as shown by mortality of silverfish from continuous contact with the treated surfaces following exposure of the dusts for zero to 30 days.

| Type of dust | Dust expo- sure—Days | Mortality Per Cent |
|--------------|-------------------------|-----------------------|
| 3% DDT | 0-30 | 100 |
| 95% NaF | 0-30 | 100 |
| 10% Pyr. | 0-5 | 20 |
| | 10 | 60 |
| | 15-25 | 0 |
| | 27 | 40 |
| | 30 | 0 |
| Talc | 0-30 | 0 |
| Checks | 0-30 | 9 |

to reduce the effectiveness in the moist environment. It is frequently stated in the literature that moisture causes sodium fluoride to cake, which reduces its effectiveness.

The inert dust, talc, was ineffective against the silverfish in the moist condition even on the first day, but very effective in producing mortality in the dry environment. The pyrethrum combination was about onefourth as effective in the moist as in the dry condition. This sample of pyrethrum, made up of a 3 per cent petroleum solution of pyrethrins in 97 per cent pyrophyllite and labeled as a 10 per cent dust, was not a fresh product. The inert pyrophyllite dust may have been the major killing agent rather than the pyrethrum. Occasional deaths occurred among the check insects. Since no food was available, most if not all of the deaths among the check insects probably resulted from cannibalism as this species is cannibalistic if retained for several days without food. The dry environment under the winter room conditions is detrimental to silverfish. Apparently the percentages of mortality in the dishes with the dust treatments were produced by the insecticides rather than the low moisture, since the shortest period of survival among the check lots was about that of the longest period of survival with the insecticides (Table 10).

Conclusions

DDT exhibits a high degree of residual toxicity over considerable periods of time. Temperature conditions of 32° to 37° C. with high relative humidity definitely reduce the period of residual effectiveness of DDT. Dry conditions at these temperatures and moist conditions at lower temperatures have little deleterious effect on the residual toxicity of DDT dust applications over considerable periods of time. Insects coming into contact with surfaces treated with DDT rapidly reduce the effectiveness of the treated area, thus reducing the residual period.

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(Turn to Page 171)

TABLE 10

The effects of winter room conditions, 23° C. and 26 per cent relative humidity, on the residual toxicity of several insecticidal dusts as shown by mortality of silverfish from continuous contact with the treated surfaces following exposure of the dusts for zero to 30 days.

| Type of dust | Dust exposure Days | Mortality Per Cent | Longest period to kill—Hours |
|--------------|--------------------------|-----------------------|-------------------------------------|
| 3% DDT | 0-30 | 100 | 38 |
| 95% NaF | 0-30 | 100 | 151 |
| 10% Pyr. | 0 | 100 | |
| | 5-9 | 20 | 118 |
| | 16-30 | 100 | |
| Talc | 0 | 100 | 143 |
| | 0 | 80 | |
| | | | Shortest period to kill—Hours |
| Checks | | 8 | 142 |



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ROACH REARING and TESTING

THE two papers which follow present the latest developments on roach rearing and testing. They are the result of a cooperative project being carried on by the U. S. Department of Agriculture and the National Association of Insecticide and Disinfectant Manufacturers in an effort to arrive at a practical and uniform method of testing roach sprays. The method as outlined by Mr. Bottimer is the one currently in use at the Beltsville, Md., laboratory for testing commercial sprays. Dr. Hazard has been working essentially with the same general method, originally suggested by L. S. Henderson, Mr. Bottimer's

predecessor at the USDA. Hazard's work has been pointed toward the elimination of as many variables as possible, and like Bottimer he has introduced numerous refinements in the original technique Neither variation of the method has as yet been adopted by the NAIDM and the results of their cooperative work are presented here only for further consideration and study by the association mem-

> Franklin C. Nelson Chairman, Insecticide Scientific Committee, N.A.I.D.M.

By L. J. Bottimer

Entomologist, Insecticide Division, Livestock Branch, Production and Marketing Administration, U. S. Department of Agriculture

FOR a number of years it has been known that roaches react differently to household sprays than do houseflies and that the results obtained with flies in the Peet-Grady test pro-cedure are not in all cases indicative of the value of the same material when used on roaches.

Of the several proposed methods for spraying roaches the majority are based, at least, on the settling mist principle (1, 9, and 10). McGovran and Fales (7) developed a pendulum method in which a direct but intermittent spray was applied to the insects.

The control of roach sprays un-der the Federal Insecticide Act seems to call for a direct spray and a method in which the dosage is based on volume rather than on spraying time, because of the variation in specific gravity of the different types of commercial insecticides recommended by the sellers for

roach control. The present method of testing liquid contact insecticides on roaches under the Insecticide Act is to apply a continuous vertical spray directed downward onto the insects in screenbottom cups. This is done in an opentop chamber from which all excess mist from the spray is immediately drawn to the outside. The unknown insecticide is compared directly with the current Official Test Insecticide, by use of dosages of equal volume for each lot (cup) and an equal number of lots in each series, with approximately the same number of like insects in each series. As is done in the Peet-Grady procedure, an O. T. I. series is run with from one to four unknowns at the same time, the number of unknowns

used depending upon the number of suitable roaches available.

Although the dimensions of some of the equipment used are given in detail, it should not be assumed that such dimensions are final. Many of them are quite optional and could be modified to meet the conditions existing in other laboratories. Numerous improvements, both in equipment and procedures, have been made since the Production and Marketing Administration's Insecticide Testing Laboratory first attempted to evaluate roach sprays, and others are in order. Basically, however, the method remains about the same as that worked out by L. S. Henderson (5), formerly a member of this laboratory, with some assistance by the writer.

REARING ROACHES

SEVERAL articles have been published in which detailed methods of handling the German roach are described. In the development of this laboratory's present procedures certain features of these various methods have been freely copied.

Both German and American roaches are easily reared on food and water in nearly any type of container of sufficient size and having smooth and more or less vertical sides that can be banded with mineral oil or some type of heavy grease to prevent their escape. They can breed under very crowded conditions, but it is advisable to provide sufficient resting areas in each container so that the insects do not crowd each other. While normally nocturnal in habits, neither species seems to object to a moderate amount of daylight. Although these insects in

nature are quite resistant to changes in temperature and other conditions, when produced for test purposes it is desirable to rear them under controlled conditions, especially with respect to food, temperature, and humidity.

A. Equipment

1. Rearing Room

Both species of roaches are reared in a 10 x 11½-foot room in which the temperature is kept at about The glass in a large south window has been given a thin coat of white paint to prevent too much direct sunlight from entering the room. A shallow metal tray of water on a shelf just above one of the electric heaters provides for some humidity, but un-fortunately this is not completely satisfactory. A 10" fan mounted in a window can be turned on at will for occasional ventilation. Shelf and bench space are also available.

2. Movable Work Trays

To guard against the escape of roaches, practically all such duties as feeding, watering, sorting, and transferring are carried out on a galvanized metal tray. This tray has a 24 x 60" level space in the center and is bordered on all four sides by a moat 21/4" wide and 11/2" deep. The upper edge of the outer wall of the moat is rolled inwardly around a heavy wire as a reinforcement. A thin layer of commercial tree-banding material spread evenly on the upper inch of the wall just beneath the rolled edge has proved to be an excellent barrier.

Shallow wooden trays of approx_ imately 24 x 60 x 2½", outside measurement, are used mainly to hold dishes of roaches under test, but they are occasionally used as work trays.
The sides are of 1" material having the lower inner edge rabbeted to receive the 1/4" plywood base. A strip of wood 1/4 x 1%" is nailed flat to the upper edge of the tray flush with the outside. The upper inch of the four sides of the tray, just beneath the projecting strip of wood, is treated with tree-banding material as in the metal tray.

3. Rearing Cages

Three types of containers are used for rearing.

a. Rearing jar: This is the standard gallon size glass battery jar 6" wide and 9" high. It is provided with a ½" layer of fine sawdust packed evenly and firmly in the bottom. The jar, as with all glass containers in which roaches are held, is banded with a thin layer of light mineral oil on the inner surface near the top. It is kept covered with a loosely-fitting lid made by soldering a disc of 16-mesh wire screening to a circular band of copper about 1/2" wide.

b. Brood chamber: This consists of two open top metal boxes and is



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similar in principle to that illustrated by Woodbury and Barnhart (9) :95. The inner box is 10" wide, 18" long, and 5" high. Except for a 1" strip of metal on each of the four sides, the bottom is of 8-mesh screening, the screening area being about 8 x 16". This box is mounted on four ¼ x 1" round-headed stove bolts which serve as legs. In installing a bolt a 1/4" hole is drilled through the metal bottom close to the corner, the bolt pushed through from the inside of the box, and the nut tightened up against the metal from below. The outer box is 16" wide, 24" long, and 3" high and has a solid bottom. The upper edge of each of the four sides of both boxes is bent in at a right angle to form a %" flange. Both boxes are banded with grease just be-neath the flange, and in addition the inner cage is banded on the lower surface of the bottom just outside the screening and on the four legs. It is quite necessary to have one extra outer box, regardless of the number of brood chambers in operation.

c. Rearing box: This is an opentop metal box 12" wide, 18" long, and 8" high with a solid bottom. It is covered with a loosely-fitting lid made by soldering 16-mesh wire screening to a suitable metal frame. With this box, as well as with the two in the brood chamber, it is desirable to have the vertical surfaces as smooth as possible on the inside. The seams and soldering, therefore, should be on the outside. To facilitate cleaning this container, a sheet of heavy paper, cut slightly larger than the bottom of the box, is forced into the box so that the edges fold up slightly against the walls and make a tight fit, preventing roaches and debris from getting beneath the paper.

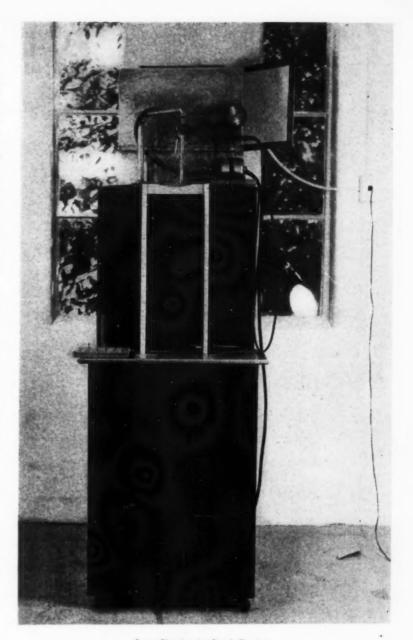
4. Food, Water, and Shelters

Commercial dog food in the form of dry pellets and water are kept before the roaches at all times. There is some waste to the dog food since it contains certain ingredients not relished by the insects. It is advisable to place the food in a small dish in the rearing container, so that the uneaten portions can be removed at intervals. Shell vials about 22 mm. wide and 85 mm. high are used to hold water. The vial is filled with water and a small flattened wad of wet absorbent cotton is forced into the open end so as to exclude air bubbles. With the proper amount of cotton, the water will not leak out when the vial is placed on its side.

Paper drinking cups and cones of light cardboard notched at the open end make ideal roach shelters when placed in the rearing containers. The shelter cones are 2%" high and 2\%" wide at the base, and have a 4d nail pushed up through the apex for use as a handle. They are used extensively in transferring German roaches. Cylinders of cardboard and of hardware cloth of suitable size have also been found satisfactory as resting places, particularly for the larger nymphs and adults of the American roach.

B. Rearing German Roaches

Females with egg capsules are placed in the screen-bottom section of



Spray Chamber for Roach Testing

the brood chamber with food and water. Since no shelter is provided in this section, the females remain for the most part on the screen in a somewhat crowded condition. As the young nymphs leave the egg capsules they are forced to seek shelter from the females, and practically all of them pass through the screen and fall to the bottom of the outer box. Here they are trapped in a shelter cone placed near the open end of a vial of water. No food is placed in the outer section of the brood chamber. The nymphs are transferred from the cones to a dated rearing jar at least daily.

The section holding the females can be kept in continuous use, although every few months it is advisable to remove the roaches and clean and regrease the box. At frequent intervals the dead roaches and the empty egg capsules should be removed. This is accomplished by carefully brushing (with a 11/2" paint brush) the contents of the box onto a cardboard, allowing the live insects to crawl off, and transferring the balance to a crystallization dish. A cone placed in this dish will trap most of the live roaches that were transferred, if necessary to save them. About once a week the inner box with the females should be transferred to a clean base. Nymphs that have escaped trapping are then removed and the box thoroughly cleaned. By having an extra outer box, one can always be kept clean and ready for use.

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One rearing jar with two of the shelter cones will provide enough space for rearing about 800 nymphs to the fourth instar, the stage used at present in tests with immature roaches. When a sufficient number in the jar has reached this stage, the nymphs are transferred to large crystallization dishes for chilling in the refrigerator. Roaches not used in tests as nymphs are placed in a rearing box and allowed to develop to the adult stage. Paper cups are used as shelters in this box. Before any young nymphs appear in the rearing box the roaches are transferred to glass dishes, chilled and sorted. The females with egg capsules are placed in the brood chamber, the fully matured adult males counted out for tests and the remaining roaches placed in a clean rearing box.

Should the test procedure call for the use of adult males only, the rearing program would remain as outlined—the nymphs being held in rearing jars until they become half-grown and then transferred to the larger rearing box.

C. Rearing American Roaches

Fifty or sixty breeders are kept in one of the 12 x 18" rearing boxes. While the ratio of the sexes for maximum egg production is not known, one male to every six or seven females gave satisfactory results. In addition to a dish of food, two or more vials of water, and some wire cylinders for resting purposes, this cage has a crystallization dish 5" wide and 2½" high, about half filled with finely sifted saw. dust. The majority of the egg capsules are buried in the sawdust. Some, however, are placed in other parts of the box, and these should be gathered often as they are likely to be eaten by the adults if left any length of time. At least once a week the dish of sawdust is removed and the contents sifted through a small 8-mesh wire screen which retains the capsules. The dish of sawdust is returned to the rearing box and the capsules placed with others collected during the current month. Thus each month's supply of capsules is kept separate.

The rearing jar is used for the young nymphs. The jar is set up in the usual manner-with a layer of sawdust, a vial of water, and a small amount of food. In addition, it contains two widemouthed bottles about 11/2" wide and 2½" high, each bottle holding a month's collection of egg capsules. If for example, the breeding cage is started in January, the first small bottle in the rearing jar will hold all of the January capsules, the second bottle, also in the jar, will contain the February capsules, and a third similar bottle kept in the and a third similar bottle kept in the rearing room will hold those obtained during March. About six weeks is normally required for the nymphs to hatch. Therefore, the January bottle will produce young starting about Feb. ruary 15 and continuing for four or five weeks. During the second week of April, the January bottle is removed from the jar and the one with the March capsules substituted. Thus, about the 10th of each month the bottle containing capsules of the previous month is substituted for the one holding the older capsules in the rearing jar.

As the young of the American roach are quite unable to climb a vertical glass, some means must be provided for their escape from the bottle of egg capsules. For this purpose a ½" strip of cardboard about 5" long is used. The strip is bent near the middle into the shape of a "V" and inverted in the bottle so that one end is well down among the capsules and the other extends out into the rearing jar to about ½" of the sawdust, preferably directed toward the food. After resting on the cardboard strip for a short time the nymphs jump or fall to the sawdust in search of food and water. Very few fail to leave the bottle. Care should be taken to prevent the nymphs from reaching the outer ends of the cardboard strips.

When the desired number of nymphs is present in the rearing jar, the cardboard strips are removed from the bottles and placed on the sawdust, the bottles are then transferred to the second rearing jar, and the strips freed of nymphs and returned to the bottles. Two paper cups are placed in the first jar for shelter and the jar is dated.

The roaches can be reared to maturity in the battery jar, with an occasional transfer to a clean jar with clean shelters. The writer, however, prefers to hold the young nymphs in the jars only until they become of testing size, then putting those not used into one of the 12 x 18" rearing boxes for their continued development. It is quite necessary to allow some nymphs to become adults in order to have replacements for dead or discarded breeders.

SPRAYING ROACHES

A. Test Insects

THE fourth instar nymph of the Ger-I man roach has been the principal test insect. Nymphs are selected according to instar rather than age be-cause their rate of development varies considerably. Since there is also considerable variation among individuals within this stage, it is rather difficult to obtain a satisfactorily uniform group 400 or 500 nymphs at one time for maximum testing. Older stages show a still greater variation in size among individuals, and in addition, the relative resistence to sprays between the sexes becomes more pronounced. Nymphs within two days of their next molt should not be used because molting during the recovery period is undesirable.

The adult male of this species has also been used quite extensively, and with promising results. This seems to be the logical stage for testing. The use of the males eliminates the question of sex-ratio. They do not vary in size as do the nymphs, and can be used over a much longer period of time than can the nymph of any one instar; also they are easily picked out from a mixed lot of adults and large nymphs. Under the rearing program outlined above, a large colony of roaches can be maintained, and all of the males produced utilized for tests. The maximum age of the males can be determined by dating the reared boxes, but there would be no way of determining the minimum age.

The adult female of the German roach has not been tested. It would be

rather difficult to maintain a colony of sufficient size to produce the required number of mature females for extensive testing.

Of the American roach, nymphs of various ages have been used to some extent in our spray tests, but the adults have not been sprayed. Individuals of this species also develop unevenly, so they are picked according to size. A satisfactory nymphal length is 12 mm.

B. Equipment

1. Testing Room

The spraying is done in a well-lighted room about 10 x 11½ feet in size, separate from the rearing room but in the same building. It is equipped with a ventilator fan and with an electric heater to raise the temperature to about 78°F. during the spraying.

2. Spray Chamber

The chamber is constructed of 3/16" Masonite Presdwood glued and screwed to a wooden frame of full 1 x 1" material. It is essentially a 24 x 24" box 57½" high, open at the top, and with the front part of the upper 24" recess about 4" and 3-sided, somewhat resembling a miniature ticket-selling booth. It has a narrow shelf in front at convenient height and immediately above this an observation window in the middle and a suitable arm-hole in each of the two angling (45 degrees) wings. Other specifications follow.

Upper part of chamber: The outside dimensions of this 6-sided portion are: back 24", sides 1234", wings 10", and window 10".

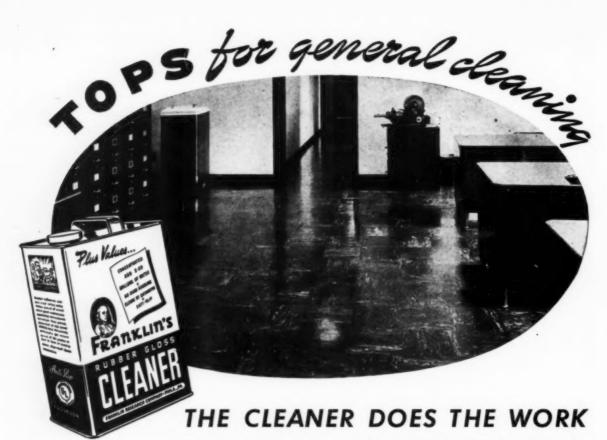
Wings: 10 x 24", with a 5 x 8" opening across the bottom.

Window: 10 x 24". A pane of glass 9 x 24" is held in place by two strips of metal bent to form grooves against the wooden uprights holding the front edges of the wings. The glass is easily removed vertically, thus leaving an $8\frac{1}{2}$ x $22\frac{1}{2}$ " opening (allowing for a $1\frac{1}{2}$ " strip holding the wings together at the top).

Shelf: 12 x 26". The ends and the front edge extend 1" beyond the lower part of the chamber. The inner portion of the shelf is cut out to correspond roughly with the 3-sided front of the chamber. The back edge supports the pane of glass and its frame.

Support for cups: While being sprayed, the cup containing roaches rests upon a removable screen frame that divides the chamber into two parts of shelf level. The support is a 6sided piece of ½" hardware cloth cut to fit down into the upper part of the chamber. The three front edges narrowly rest on the shelf. The back and two sides are nailed to strips of wood making a frame that fits rather firmly between the back edge of the shelf and the back wall of the chamber. Wooden strips nailed to the 1 x 1" uprights in the back corners keep the screen at shelf height. The cup is centered by pushing it against the ends of two narrow strips of wood which hold at the desired distance from the back and one side of the chamber.

Top of chamber: Open except for a 6 x 25" board which is securely



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Support for atomizer: This is made of three pieces of pipe (10" length of ¾", 8" length of ½", 10" length of ¼"), one ¾" flange, and two reducing ells. These parts are screwed together very tightly to form a rigid U-shaped support. This support is then bolted to the top of the 6" board with the ¼" pipe slightly back of the center of the chamber so as to permit the atomizer to be nearer the operator. The exact position of the support is determined by clamping the atomizer in its place on the $\frac{1}{4}$ " pipe and then moving the support so that the nozzle is directly above the center of the chamber.

Atomizer: DeVilbiss Special No. 5004 (designed for Peet-Grady tests). It is clamped to the ¼" pipe of the support so it sprays directly downward. The metal intake is replaced by a 2½" length of capillary glass tubing having a 1 mm. bore. The free end of the tubing is drawn to blunt point without changing the size of the opening. The intake is bent downward at a right angle near its point of attachment, and should be no longer than necessary to reach the bottom of the vial holding the insecticide. The present spraying distance is 28".

Lower part of chamber: This is tight except for a narrow screened opening about 2% x 19" across the lower part of the back wall. Just above this, about 4" above the floor of the chamber, there is a removable false bottom with a hole 4" in diameter in the center. A layer of cheesecloth over the 4" hole absorbs some of the excess spray.

Ventilation: A 12" fan mounted in a window of the testing room some 6 feet above the floor is used for ventilation. Air is drawn downward through the hole in the false bottom of the chamber, through the screened opening in the back wall, and up a metal duct to the outside. The 3 x 20" duct is screwed flat to the back of the chamber and has the upper part elbowed into a suitable shape that covers the fan opening. The duct is provided with a damper just below the

Castors: 21/2" ball bearing castors bring the height of the chamber to 60" and the shelf to 36" above the floor. The unit is easily moved about and can be removed from the testing room whenever necessary.

3. Other Equipment

Tin cup: An ordinary tin drink-ing cup with the handle removed is used only to hold one lot of roaches until the insects are ready to be transferred to a screen-bottom cup. It is not used in spraying.

Screen-bottom cup: This is 4" wide and 21/2" high. It is hand made of copper with a 16-mesh copper screen soldered to the bottom edge. The cup should be made so that the inner surface of the sides is as smooth as possible. All of this surface is well-coated with mineral oil before the cup is used,

in order to keep the roaches on the screen bottom.

Petri dishes: These are sometimes necessary to use over cups when working with larger roaches, even though the inner sides of the cups are properly oiled.

Micro burette: Five ml. capacity, graduated to 1/20 ml.

Glass vial; A shell vial 12 mm. wide and 45 mm. high.

Vial holder: A block of 3/4" wood with 25 holes arranged in 5 rows of 5 holes each. The %" holes are drilled completely through the wood and a piece of cardboard fastened to the lower surface.

Recovery dish: A standard glass crystallization dish 125 mm. wide and 65 mm. high with filter paper on the

Tray: The extra metal base of the German roach brood chamber is used to carry the containers of roaches to and from the testing room. The various transfers of the insects at the time of testing are made in this metal tray.

Of the articles here listed, minimum of 25 of each of the two kinds of cups, recovery dishes, and vials is suggested. Acetone is used to remove sprays from the glassware and the screen-bottom cups.

C. Procedure

Chilled German roaches are counted into the tin cups, either 20 nymphs or 15 adult males in each, depending upon which stage is being used. The number of cups should be 10, 15, 20 or 25. This number divided by 5 will give the number of insecticides that can be used, one being the current O. T. I. Therefore, a total of 100 nymphs or 75 adults is used in each series for each insecticide.

The dosage applied to each lot of roaches is determined by the kill desired with the comparative insecticide. In our case, 0.50 ml. of the O. T. I. has produced an average kill of 73% of the nymphs over a considerable period of time, while 0.70 ml. has killed an average of 66% of the males. This determined volume of the first spray is measured into each of 5 vials arranged in the first row in the vial holder. The same amount of each of the other insecticides to be tested is similarly measured out. The arrangement of the rows of vials in the wooden holder determines the order of tests.

The screen-bottom cups and the recovery dishes should be in the test-ing room ready for use. The exhaust is allowed to run continuously until all of the spraying is completed.

Five tin cups with roaches are chosen at random and carried to the testing room in a suitable tray. The first lot is transferred to a screenbottom cup which is then centered on the hardware cloth support in the spray chamber, and a vial of insecti-cide held up to the glass intake of the atomizer. As soon as this lot is sprayed, the insects are dumped into a recovery dish. A small amount of acetone is run through the atomizer, then the next lot is treated. When the series of 5 lots has been sprayed, the recovery dishes

are carried to the rearing room and arranged in a row in the same order in which they were treated. The second series is then taken to the testing room and sprayed with the second insecticide in a similar manner, and in turn is followed by the other series. The roaches are not kept in the screenbottom cups more than a few seconds before or after treatment.

The roaches are retained in the recovery dishes without food or water for 48 hours, counts of dead and moribund being taken at both 24 and 48

The procedure with the American roach nymphs is the same as outlined, except that 10 of the 12 mm. size and only 5 of the larger nymphs are used in each lot.

D. Evaluation

The per cent kill for a series is obtained by adding together the per cent kill in each lot and dividing by 5. This average kill is then compared with that obtained in the O. T. I. series run at the same time, and the difference, as represented by the percentage points (preceded by a plus or minus sign, as the case may be), constitutes the rating. Three or 4 series will usually give a rather definite indication of the value of a product as compared with that of

the O. T. I.

The recent trend toward the addition to ordinary household sprays of insecticides having residual value has complicated the roach-testing procedure to some extent. The main complications are the difficulty in properly cleaning used equipment, especially the screen-bottom cups, and the constant danger of contaminating clean equipment with these materials. However, with proper care the newer sprays that are not recommended on the label solely as residual sprays can be evaluated by this method. Those recom-mended as residual sprays only can hardly be tested with a method based on contact. It is quite possible that the present recovery period of 48 hours should be increased to 72 or more hours in order to obtain a fuller value of those products that contain residual ingredients.

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Modifications of the LIQUID ROACH METHOD

By Frank O. Hazard

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Introduction

THE investigation here reported was begun in 1943 at the suggestion of the Insecticide Scientific Committee of the N.A.I.D.M. The primary objective of this work was to make comparative tests against roaches using the method developed by the U.S.D.A. Insecticide Testing Laboratory at Beltsville, Mary-

Exploratory tests revealed that although an evaluation of liquid insecticides could be obtained by this method, nevertheless, considerable variation occurred among individual replications for a given test. A study was therefore undertaken to determine the variable factors involved in an attempt to obtain a greater degree of uniformity.

In preliminary tests, sexed adult German cockroaches were used, the re sults showing male roaches to be much less resistant to insecticidal spray than females. In a large series of tests this difference in susceptibility also was obtained for fourth instar nymphs. Subsequent studies have given

the following results. There is a dis-tinct correlation between particle size and per cent mortality. Tests conand per cent mortality. Tests con-ducted at three levels of pressure (twenty, twelve, and six pounds) in-dicated a higher mortality rate at the lowest pressure, namely six pounds. A spray delivered at a pressure of twenty or twelve pounds has a much smaller particle size than at six pounds. Another phase of the work has dealt with the age of the adult male in rela-tion to susceptibility. The data have shown that adult males in the age group of 1 to 3 days are much more highly susceptible to the spray than individuals in the age groups of 7 to days and 13 to 15 days, with insignificant differences for this factor existing between the last two groups. Also it has been found that there is no marked difference in the susceptibility of roaches raised on different brands of dog food. Substantially the same per cent kill was obtained for five different products. However, Purina Dog Checkers will develop many more insects. There is much less waste in the check-

ers than in food furnished in meal form. Another phase of the study has dealt with modifications of the container. Screen-bottomed containers permit an even flow of spray over insects. Those having a diameter of 3½ inches and side wall heights of 1½ inches, 2 inches, and 3 inches have been tested with only slight differences in the relative mortality. Furthermore, it has been found that an oiled 3 inch side wall prevents the escape of German roaches. A few individuals will

escape if the side wall height is less.

In the light of these findings, several modifications have been intro duced in the original procedure in an attempt to decrease the degree of variation in the per cent mortality for replications. Adult male roaches are used which have been fed on Purina Dog Checkers and which have an age range of 7 to 14 days. The spray is delivered at a pressure of six pounds into screen-bottomed containers having a diameter of 3½ inches, and a side wall height of 3 inches. These modifications of the original procedure are in current use at this laboratory.

Testing Apparatus

SINCE the apparatus for conducting evaluations varies in a number of minor details from the one originally in use at the Beltsville Laboratory, assembly will be described in detail.

The box-like spray chamber is 18 inches square and 25½ inches deep. It is completely enclosed by four side walls composed of % inch Masonite. The floor is of ¼ inch pine possessing a centrally placed opening 31/2 inches in diameter. There is no top. The inner surface is painted with white enamel.

The atomizer used is the De Vilbiss Special No. 5004. It is mounted in a horizontal position with the nozzle pointing toward the floor of the chamber. The intake tube is bent at a right angle with its opening also toward the floor. It is mounted between two semicircular pieces of cork together having a diameter of 2 inches. These, in turn, are held firmly in an extension clamp holder attached to the rod of a sup-

port stand. The base of the support stand rests on the floor of the chamber, with the atomizer nozzle 28 inches above the floor. The spray chamber rests on a stand 19½ inches above the floor of the room.

The testing room is approxi-mately 15 feet square and 9 feet high insulated with one half inch pressed wall board. It is heated by a thermostatically controlled gas heater and is ventilated by means of a 14 inch electric fan mounted 8 feet above the floor.

Testing Procedure

In preparation for testing, screen-bottomed containers are coated on the entire inner surface of the side wall with a thin film of mineral oil. Five containers are thus prepared for the O.T.I, in conjunction with the same number for each sample to be tested. An oiled enamel pan is used for dis-tributing the roaches to the containers. Adult male roaches ranging in age from 7 to 14 days are removed from the stock jars to the pan. Introduction of the roaches into the test containers is accomplished by holding the pan in a vertical position while jarring it with the hand. (In handling roaches we do not chill them, but rely upon the use of oiled containers; however, chilling is not regarded as deleterious in its effect upon the insects.) After the containers are supplied with approximately fifteen test insects, they are taken to the testing room where remain for a period of one hour before testing. This period is arbitrarily established to allow for possible biological adjustment necessary because of the difference in relative humidity between the two rooms. The relative humidity of our testing room is con-siderably lower than that of the rearing room. There is considerable evidence from tests against both roaches and flies that tests run at a high relative humidity result in a comparatively high mortality. During this hour period the insecticide is pipetted into shellvials having dimensions of 35 by 12 mm. The pipettes have a 1 ml. capacity with graduations of .01 ml. The dosage is equal in both the O.T.I. and the sample to be evaluated. Six vials of insecticide per sample are prepared, the extra vial of material serving as a primer for the atomizer. After this process the atomizer is adjusted to spray directly into the opening in the floor of the test chamber. This is accomplished by using a sheet of blue colored paper placed over the floor opening. The spray pattern is clearly visible on this paper. When the pattern coincides with the floor opening the atomizer is a line. At this point the atomizer is in line. At this point it is necessary to clean the atomizer by running a small quantity of acetone through it. This is followed by the primer, which has the dual function of producing the delivery of a uniform amount of insecticide for each replication. Small amounts of insecticide are held back by the atomizer necessitating the use of the primer if the first applicathe use of the primer if the first applica-tion is to equal the succeeding four. We have found that acetone, due to its high vaporizing quality will if not removed reduce the efficacy of the first test in each series. The primer, then, has a second function of removing the acetone from the atomizer.

(Turn to Page 167)

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ECENTLY Telford and Guthrie (1) presented evidence for the transmission of DDT toxicity in the milk of white rats and goats. As this paper was in press, Woodard, Ofner, and Montgomery (2) chemically determined the presence of DDT in the milk of a dog which had received oral dosages of solid DDT. The data herein recorded is a continuation of this study with the following objective in view: (1) to determine the duration of toxicity in goats' milk after single massive oral doses of DDT, (2) to determine the relative toxicity to white rats of skim milk and cream obtained from similarly treated goats, and (3) to determine the toxicity to laboratory reared houseflies of milk and butter obtained from treated goats.

Duration of Toxicity of Goat's Milk

Two goats and 20 white rats were employed in this experiment. One 94-pound goat was given 117.5 grams of DDT orally (1.25 gr. per lb. of body wt.) in a corn starch suspension. She was milked twice daily and a white rat was allowed to feed ad lib. upon all the milk she produced at that particular milking. Unfortunately the goat was overdosed and became prostrate within 52 hours after administration, at which time she was destroyed. The effects of her milk upon 4 rats are shown in Table 1. Another animal weighing 110 pounds was then given 75 grams of DDT (0.68 gr. per lb. of body wt.) in a similar manner. Sixteen rats were used, each receiving the entire amount produced at each milking. From an examination of Tables 1 and 2 it is seen that the milk became sufficiently toxic to kill rats within 29 to 31 hours after administration and that the toxic principle was eliminated in the milk in sufficient quantities to be toxic to rats approximately a week after administration. The second goat exhibited severe tremors but later recovered and approximately a month later gave birth to an apparently normal kid.

Relative Toxicity of Skim Milk and Cream to White Rats

An 85-pound goat was given a single oral dose of 58 grams of DDT

DDT Toxicity

Dr. Horace S. Telford

Dr. Hess & Clark, Inc.

TABLE 1
Toxicity to White Rats of Whole Milk from a 94-pound Goat Receiving a Single Oral Dose of 117.5 Grams of DDT*

| | Animal designation | Weight of rat (grams) | Interval between treatment and milking (hours) | Amount of milk consumed (c.c.) | Symptoms frat berrsdo (hours) | Interval between treatment and death (hours) |
|----|-----------------------|-----------------------|---|--------------------------------|--|---|
| 1. | Male | 340 | 7 | 220 | No symptoms | Survived |
| 2. | Male | 285 | 24 | 200 | No symptoms | Survived |
| 3. | Female | 117 | 31 | 66 | 24 | 96 |
| 4. | Female | 174 | 48 | 31 | No symptoms | Survived |
| | | | | | | |

* Fifty-two hours after administration the goat exhibited severe tremors, convulsions and became prostrate. She was then destroyed.

TABLE 2
Toxicity to White Rats of Whole Milk from a 110-pound Goat Receiving a Single Oral Dose of 75 Grams of DDT.

| | Animal designation | Weight of rat (grams) | Interval between treatment and milking (hours) | Amount of milk consumed (c.c.) | Symptoms first observed (hours) | Interval between treatment and death (hours). |
|----------|--------------------|-----------------------|---|---|---------------------------------------|--|
| 1. | Female | 148 | 5 | 212 | No symptoms | Survived |
| 2. | ** | 156 | 21 | 125 | No symptoms | Survived |
| 3. | ** | 140 | 29 | 40 | 14 | 40 |
| 4. | 44 | 154 | 45 | 90 | 24 | 30 |
| 5. | ** | 121 | 53 | 40 | 16 | 48 |
| 6. | ** | 140 | 69 | 78 | 24 | 61 |
| 7. 8. | | 165 | 77 | 10 | 16 | 67 |
| 8. | 4. | 184 | 92 | 80 | 9 | 72 |
| 9. | 4.4 | 170 | 101 | 70 | 52 | 111 |
| 0. | ** | 120 | 116 | 80 | 28 | 72 |
| 1. | 55 | 110 | 120 | 64 | 24 | 74 |
| 2. | 44. | 125 | 144 | 140 | 26 | 98 |
| 3. | ** | 145 | 164 | 250 | No symptoms | Survived |
| 4. | 44 | 160 | 173 | 190 | 48 | Survived |
| 15. | ** | 162 | 188 | 250 | No symptoms | Survived |
| 16. | Male | 170 | 212 | 250 | No symptoms | Survived |

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TABLE 3

Toxicity to White Rats of Milk and Cream from an 85-pound Goat Receiving a Single Oral Dose of 58 Grams of DDT.

| | Animal signation | Weight of rat (grams) | Interval between treatment and milking (hours) | Amount of cream consumed (grams) | Amount of skim milk consumed (c.c.) | Amount of whole milk consumed (c.c.) | to | required consume feed | | me required r symptoms to occur (hours) | Interval between treatment and death (days) |
|----|------------------|-----------------------------|---|---|--|---|----|-----------------------------|----|---|--|
| 1. | Female | 195 | 29 | 4.3 | | | 5 | min. | 18 | (Severe | Survived |
| 2. | Female | 158 | 29 | | 83 | | 24 | hrs. | No | symptoms | Survived |
| 3. | Male | 200 | 48 | 11.1 | | | 3 | hrs. | 16 | (Severe) | Survived |
| 4. | Male | 170 | 48 | | 230 | | 48 | hrs. | 44 | (Mild) | Survived |
| 5. | Male | 204 | 65 | 4.5 | | | 6 | hrs. | 7 | (Moderate) | Survived |
| 6. | Male | 245 | 65 | | 90 | | 40 | hrs. | 40 | (Mild) | Survived |
| 7. | Female | 223 | 83 | 6.0 | | | 22 | hrs. | 22 | | 4 |
| 8. | Female | 195 | 83 | | 185 | | 5 | days | 22 | (Severe) | Survived |
| 9. | Male | 100 | 98 | | | 117 | 5 | days | 20 | | 5 |
| 0. | Female | 195 | 125 | 9.5 | | | | hrs. | 18 | (Mild) | Survived |

(0.68 gr. per lb. of body wt.). Her milk was saved at frequent intervals, centrifuged and the cream obtained from each milking was fed to one rat and the skim milk to another (Table 3). Rats No. 1 to 8 were treated in this manner, while rat No. 9 was given whole milk and rat No. 10 was given cream from milk obtained later. In most instances relatively small amounts of cream produced severe symptoms, while relatively large amounts of skim milk were required to produce even mild symptoms in the rats. As would be expected whole milk was toxic. Rat No. 9 died within 5 days after consuming 117 c.c. of whole milk. Evidence was thus obtained that cream was many times more toxic than skim milk, but the latter contained enough DDT to produce symptoms.

Toxicity of Whole Milk and Butter to Laboratory Reared Houseflies

Through the courtesy of Dr. Carl J. Weinman, Special Research Assistant of the Illinois State Natural History Survey and the Illinois Agriculture Experiment Station, laboratory tests on the toxicity of whole milk and butter to houseflies from goats receiving oral dosages of DDT were conducted.

The toxicity of milk was determined by introducing a large number of laboratory reared houseflies into two cages, one containing milk from a goat which had been given daily dosages of 1 gram of DDT to 8-9 lbs. body weight for 13 days, the other containing milk from untreated goats. The flies fed the DDT milk began to show paralysis in less than an hour. In $1\frac{1}{2}$ hours some were down and all were down in $2\frac{1}{2}$ hours. None recovered. The flies fed on untreated goats' milk behaved normally and lived their usual span of life.

Dr. Weinman then made sprays from butter obtained from untreated and DDT treated goats and applied them to laboratory reared houseflies. The butter from the treated goats was a mixture from two animals. One subject had received daily oral dosages of one gram of DDT to 8-9 lbs., body weight for two weeks, the other re-

ceived one gram of DDT to 3.6 lbs. body weight 48 hours prior to milking. A summary of the formulae employed and kills obtained by the Kearn's method is embodied in Table 4. The sprays formulated from DDT butter were significantly more toxic to house-flies than sprays from normal goats' butter.

Referring to Table 4, Trials 3 to 6 were conducted to determine biologically the amount of DDT contained in the butter from orally dosed goats. Since formulation No. 3, con-

TABLE 4

| | TABLE 4 | | | |
|-------|---|----------|-----------------------------|-----------|
| Trial | Kearns Chamber Tests on Laboratory No. Formulation | Reared | Houseflies* Percent kill in | n 24 hrs. |
| | | Per Cer | nt | |
| 1 | "Normal" goats' butter | | 2.0 | |
| | Benzine | | | |
| | Butyl cellosolve | | | |
| | Methanol | | 00.0 | |
| | Butter from DDT treated goats | | 20.0 | |
| | Benzene | | | |
| | Butyl cellosolve | | | |
| | Methanol | . 31 | | |
| 2 | "Normal" goats' butter | | 3.2 | |
| | Benzene | . 50 | | |
| | Deobase | . 25 | | |
| | Butter from DDT treated goats | . 25 | 48.5 | |
| | Benzene | . 50 | | |
| | Deobase | . 25 | | |
| 3 | "Normal" goats' butter | . 50 | 6.0 | |
| - | Benzene | | | |
| | Butter from DDT treated goats | | 64.7 | |
| | Benzene | | | |
| 4 | Benzene | | 9.0 | |
| * | Deobase | | 0.0 | |
| | | | 83.9 | |
| 5 | DDT | | | |
| | Benzene | 40 000 | | |
| | Deobase | | | |
| 6 | DDT | | | |
| | Benzene | | - | |
| | Deobase | . 49.937 | 5 | |

* A description of this test and apparatus may be found in Soap & Sanitary Chemicals, 19(2): 101, 103-104, 128. 1943.



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The Effect of Fly Food On Resistance to Insecticides Containing DDT or Pyrethrum

By E. R. McGowan and W. A. Gersdorff

Bureau of Entomology and Plant Quarantine, U. S. D. A.

HE conditions that cause variation in the resistance of houseflies (Musca domestica L.) to insecticides are of fundamental as well as economic importance. One condition that may have such an effect in experimental work is the food given the adults after they emerge. Thus the food supplied the insects both before and after treatment with the spray may be important. Fletcher and Kenaga1 have shown that spray-dried skimmed milk and fresh skimmed milk produced flies of the same resistance to sprays containing 1 mg. of pyrethrins per milliliter. Another factor to be considered in connection with fly food is whether it affects the resistance of flies to different toxicants in an equal

With these points in mind six foods, as given in table 1, were fed to groups of flies from the same larval culture. In this technique approximately 150 pupae are placed in a 6inch petri dish. Each dish is covered with 16-mesh galvanized-wire screen held in place by a celluloid band. As soon as the flies begin to emerge they are fed through the screen. A wad of cotton, saturated with the liquid food, is placed on a piece of paper towel laid on the screen cover of the petri dish. The liquid food wets the paper towel, and the flies feed from the wet under surface of this paper. The food is renewed twice in 24 hours.

The stock culture was fed on 50-per cent skimmed milk in water.

The larvae were reared on Richardson's medium, and when fully grown were driven out of the medium by moistening it. They pupated in sawdust.

The resistance of each group of flies to two toxicants was determined according to the turntable method. Two-day-old flies, that had been fed the various liquids, were sprayed with pyrethrum extract or DDT in deodorized kerosene at concentrations of 0.73 mg. of pyrethrins and 0.80 mg. of DDT per milliliter and confined for 10 minutes in the settling mist. They were then transferred to clean recovery cages. Two hours later a wad of cotton saturated with the test food was placed in each cage. The feeding procedure was carried out three times, and the spray tests were made in duplicate on each day, so that the mortalities are the averages of six tests of about 150 flies each. The results obtained are given in table 1.

The average results for pyrethrum extract and DDT show considerable variation in the level of resistance of the flies fed different foods. The mortality of the flies fed fresh skimmed milk plus formaldehyde was the lowest, but this mortality was not significantly different from mortalities of flies fed fresh skimmed milk without formaldehyde or spray-dried milk powder. Granulated sugar and dried whey powder produced the weakest flies. Powdered milk produced an intermediate level of resistance.

The differences between the mortalities caused by pyrethrum extract and DDT when applied to flies receiving the same food were variable. The average difference for all foods was 27 per cent. The least difference between toxicants was shown on flies fed fresh skimmed milk. However, spray-dried milk solids and fresh skimmed milk plus formaldehyde gave values that were not significantly different from this.

The greatest difference between toxicants was found in the flies fed powdered milk. Granulated sugar, (Turn to Page 169)

TABLE 1

Mortality of houseflies fed on different diets and then sprayed with pyrethrum extract or DDT in deodorized kerosene.

| Con | ncentration in water | Pyrethrum | Mortal DDT | pyrethrun | Difference DDT minus pyrethrum |
|--|----------------------------|-----------|------------|-----------|--------------------------------------|
| | Percent | Percent | Percent | Percent | Percent |
| Dried whey powder | 5 | 54 | 89 | 71 | 35 |
| Spray-dried milk solids | | 33 | 54 | 43 | 21 |
| Powdered milk | | 39 | 76 | 57 | 37 |
| Sugar (granulated) | | 64 | 91 | 77 | 27 |
| Fresh skimmed milk | 50 | 33 | 52 | 42 | 19 |
| Fresh skimmed milk plus formaldehyde ¹ | | 30 | 53 | 41 | 23 |
| Difference required for sign | nificance | | | 8.4 | 11.6 |
| | | | | | |

^{1 1} part of 40% formaldehyde to 1,500 parts of diluted milk.

¹ Fletcher, F. W., and Kenaga, E. E. Pow dered milk as fly food. Soap and Sanit. Chem. 20(9): 105. 1944.



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SECRETARY'S REPORT

(From Page 136)

that it seems almost unbelievable that out of it should come so much that can be made useful for the good of mankind. Development is spurred by war. Technological progress, medical progress, chemical research and application, electronics,—all emerge with untold possibilities for human betterment.

With the end of the war, our industry, faced with sudden release of material supply controls, was thrown into chaos. By some miracle, it was assumed, everything would return to pre-war status as far as supply was concerned, plus the added impetus of new wartime progress. The executive offices found that the work during the war years of keeping the membership advised of M-orders, L-orders, amendments to M and L orders, revocations, the sprayer situation, etc.-had been a simple problem compared with that which broke loose when the war ended. It was decided to proceed with caution, -and we have stuck to this. Hundreds of people sought information, starting with the manufacturers, the would-be manufacturers, and the housewives. We have done our best to help them, within the limits of the functions we are able to perform.

There are some general recommendations to be made at this time. I believe we should plan for the future for larger offices, with a conference room of sufficient size to accommodate up to twelve people, comfortably, and with space for facilities for preparing and mailing our bulletins, with additional personnel. All of this, of course, must wait until space is more readily available, but it should come within the next two or three years.

At future conventions, — possibly starting in December, 1946 or 1947, there should be an exhibit at which space might be sold for the exhibition of products, packages, sprayers, dispensers, and chemicals. Any profit from this could be applied to research and other cooperative work for the general good.

Without exception, each individual member has more detail work at the present time than even during the war days. Some of the problems of the industry may be solved now and considerably ease the burdens of the future. This is an appeal to every member to contribute some of his time and effort for the benefit of the industry as a whole in the important work which NAIDM is carrying on today.

ROACH TESTING

(From Page 159)

A container of test insects for spraying is selected. The side walls are checked to determine if unoiled areas are present which would permit the roaches to leave the floor. If all roaches are on the screened bottom, the container is placed directly over the opening in the floor of the test chamber. It is then jarred to effect an equal distribution of the insects. The shell-vial is then brought into position and the spray is delivered. All tests are run at a room temperature of 80-84° F. After the completion of a series of five tests for a given sample, acetone is run through the atomizer to remove all traces of the insecticide first used. This is followed by the primer for the next material to be evaluated.

Immediately following each replication the roaches are removed to oiled recovery dishes, and are provided with neither food nor water. These dishes measure 4% inches in diameter and 2½ inches deep. It is desirable to remove the roaches immediately after spraying to avoid a variation in the length of the exposure period. Counts of the number dead and moribund are made at the end of twenty-four and forty-eight hour periods. The per cent dead and moribund is determined for each. A total of ten replications is made in each evaluation, the remaining five being conducted the following

Rearing German Roaches

WE are using the method developed at the Ohio State University by Campbell, Barnhart, and Hutzel, which is described in detail in Soap August, 1941. The chief departure oc-curs in the use of adult male roaches as test insects. To obtain male roaches having an adult life of 7 to 14 days, a number of stock jars are set aside from which all adult males have been removed. These insects are segregated from the jars at seven-day intervals. removed to dated jars, and retained for seven days, at which time they are ready for testing. Repeated segregation of individuals every seven days with their retention for seven days before testing insures roaches of the desired test age of 7 to 14 days. The use of adult males having an age of 1 to 3 days is to be avoided as they highly susceptible to the insecticide.

The detailed data from this study

The detailed data from this study have been submitted previously to the members of the Insecticide Scientific Committee. A part of the work has been presented before the meeting of the N.A.I.D.M. The findings from age, food, and side wall tests appear in the

June, 1945 issue of Soap and Sanitary Chemicals; therefore, it was judged unnecessary to include the material in this report.

Insecticide Evaluation

Various insecticides were evaluated as stomach poisons and repellents by the leaf sandwich method with miscellaneous species of cabbage-infesting larvae as test insects. Contact effects were evaluated by means of dusts with earwigs and woodlice as test insects in addition to the larvae. Contact effects of rotenone and of Lonchocarpus root were slight. As a stomach poison rotenone was specific in action, being toxic to Pieris larvae at concentrations far below those tolerated by Mamestra larvae. Various polychloroethane derivatives were also tested. H. Martin, A. Stringer, and R. L. Wain. Ann. Rept. Agr. Hort. Research Sta., Long Ashton, Bristol 1943, 62-76.

DDT TOXICITY

(From Page 163)

taining 50 per cent butter, produced a kill midway between the kills effected by 0.125 per cent and 0.0625 per cent DDT, the butter must have contained between 0.125 per cent and 0.25 per cent DDT. This is based on the assumption that the benzene-deobase solution dissolved out all the DDT in the butter.

Conclusions

Sufficient quantities of DDT were eliminated in the milk of 2 goats which had received single oral doses of 1.25 and 0.68 grams of DDT per pound of body weight respectively to produce toxic symptoms and death in white rats 29 to 31 hours after administration. The milk remained toxic for approximately a week. Eleven of the 20 rats used in the experiment died exhibiting typical symptoms of DDT intoxication.

Cream from a goat which had received a single oral dose of 0.68 grams of DDT per pound of body weight was considerably more toxic to white rats than skim milk from the same source.

Milk and butter from goats orally treated with DDT were sig-

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nificantly toxic to laboratory reared houseflies.

References

 Telford, Horace S. and James E. Guthrie. Transmission of the toxicity of DDT through the milk of white rats and goats. Science. In Press.

2. Woodard, Geoffrey, Ruth R. Ofner and Charles M. Montgomery. Accumulation of DDT in the body fat and its appearance in the milk of dogs. Science, 102 (2642): 177-178, 1945.

FLY FOODS VS. KILL (From Page 165)

which gave the highest level of kill, showed a smaller difference than did dried whey powder and powdered milk. None of these were significantly different from each other. The difference with sugar was not significantly different from fresh skimmed milk or spray dried milk solids. It is of interest that the wider variation in differences of kill caused by the two toxicants occurred mainly at the higher levels of kill. This may have been due to differences in the shape of the dosage-mortality curves of the two toxicants with flies fed on these foods.

Summary

Adult houseflies fed six different foods added to water were sprayed with pyrethrum extract and DDT by the turntable method. The average level of kill for these two toxicants ranged from 41 to 77 per cent for the different foods. The differences in kill caused by the pyrethrum extract and DDT applied to flies receiving the same food ranged from 19 to 37 per cent of the fly population treated. Fresh skimmed milk, with or without formaldehyde, and spray-dried milk solids produced the most resistant flies and also those with smallest range between the toxicants. Sugar produced the least resistant flies.

RELEASE GOVT. REPORTS (From Page 137)

of Commerce Building, 14th and Constitution Avenue, N. W., Washington 25, D. C. A procedure has been set up whereby these reports may be viewed in person in a special reading room which has been set up in the Department of Commerce Building, or the reports may be ordered by mail from the OPB. It is necessary only

that the Index No. of the report be indicated and a check or money order be sent payable to the order of the Treasurer of the United States. It should be emphasized that these orders and checks must be sent to the OPB and not to the Government Printing Office.

Up to the present about 383 reports have been declassified, that is released from the standpoint of military security and from time to time there will be additional reports made available. For those interested it is suggested that contact be maintained with the OPB so that announcements of the newer reports may be obtained.

Initially the Board was faced with two alternates in effecting release of material. First, it considered confining the release of reports only to information which had been declassified by the military. The second alternate provided for taking the individual, often incomplete, reports in the order received and presenting them for industry inspection. In view of the urgent need for information the second alternate was finally chosen, even though the initial reports were often admittedly incomplete and not fully accurate. Probably the straw which threw the balance in favor of the second alternate was that the majority of the chemical industry wanted any information made available as promptly as possible.

The prices on the individual reports are based on the number of pages contained in the report. Some consideration had previously been given to the possibility of making the copies of reports available free of charge, but it was finally decided that a nominal sum was to be charged to cover costs. Listed below are those papers which are of particular interest to the members of our industry together with the index number and the price.

In closing it should be pointed out that OPB is having its organizational difficulties and there may be some delays in securing the reports since the Budget Bureau, Congress, Commerce Department and the military all must put their O. K. on the activities of this agency. Patience is still the keynote with respect to these

reports but without doubt the reports will well be worth waiting for and will prove of material benefit to the research and production men in our industry.

6—I.G. production of synthetic fatty acids. Price not yet available.

15—I.G., Leverkusen. Brief data on synthetic rubber, gas warfare, hydrazine, new insecticides, fungicides, nylon type substance. 10_f

34—Development of improved varnishes and shellac. Price not yet available.

42—Chlorane, sulfapyridine, tibatine, vitamin C. phenothiazone, clays, insecticides, petroleum. Price not yet available.

183—I.G. plant for medical and organic chemicals. Gesarol (DDT) used in emulsion form. 10¢.

187—Inspection of I.G. plant for methanol, isobutanol, lubricating oils (from ethylene) phenol, cresols, adipic acid, phosgene, glycerol substitutes, aldehydes, fatty acids, aliphatic amines, and resins, among many others. Price not yet available.

197—Production of concentrated hydrogen peroxide solutions. Comprehensive report, with photos. Price not yet available.

216—Henkel and Co., Dusseldorf. Perborates, sodium nitrate, fatty acids, soda ash, synthetic glue. Price not yet available.

225—Production of synthetic fatty acids and edible fats. Flow sheets given. Price not yet available.

237—Pharmaceuticals and Insecticides at I.G. Plants. Processes and formulas given for many drugs and other medicinal products. Price not yet available.

240—Manufacture of insecticides, insect repellents, rodenticides. At least 9 compounds reviewed. 25¢.

252—Insecticides, insect repellents, rodenticides, and fungicides, 25€.

274—Research in fat and protein supply in Germany. Fat sources being sought in rapeseed, tomato seed, and grape seed. Dried fish source of protein. Price not yet available.

298—German Plastics Developments. Resin-impregnated wallboard and other shaped and molded products. Price not yet available.

306—Report on insecticide manufacture in Hamburg. Price not yet available.

360—Insecticides and Fungicides at I.G. plant, Hochtst. 25€.

366—Storage of Hydrogen peroxide at Vaas. Price not yet available.

NEW GERMAN INSECTICIDES

(From Page 139)

to DDT in toxicity towards bed bugs and lice (particularly the parachloro compound). Tablets weighing 25 grams were made containing 44% of

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the above active ingredients compounded with bentonite and an emulsifying agent and were used successfully in water against bed bugs and lice in concentration camps. The sulfones were found to be active chiefly against moths, mosquitoes and lice, and also towards many other insects including flies. In general, the sulfones were regarded as somewhat toxic to warmblooded animals but were claimed to be safe enough for use as insecticides.

The sulfones were also used as a mixture with 3,4-di-chlorobenzyl alcohol called "D-1210." The mixture was used against bed bugs and lice but was not effective on flies or mosquitoes.

A lousicidal powder called "Lucex" powder containing ethylchlorobenzene as the active principle was used to some extent. Its chief virtue was its low cost. It was not as effective as "Lauseto" and it has considerable odor. The composition of "Lucex" powder is as follows:

4.0% Pentavel (made by chlorinating the side chain of ethyl chlorobenzene)

0.3% chlorosulfone

34.0% Chalk

61.7% Talc

HE development of insect repellents for military use lagged far behind that in the United States. Although some attempts were made previous to the war to produce such compounds, little had been done until the German army requested them for troop protection. By that time the chemists were very short of available materials such as phthalic esters, essential oils, coumarin and other materials they had tested for the purpose, so new materials had to be found. The only compound which showed substantial promise was a solid referred to as "Repellent 50/181" or chemically, N-(Bchloroethyl) trichloroacetamide. This had also been tested in the United States by the Department of Agriculture and found to be as effective as some of the bettr solids tested. This repellent was very irritating to the skin and had to be used at a low concentration along with some emollient salt such as calcium or magnesium

chloride. The formula reported consisted of 7.5% of the "50/181," 2.5 calcium, 60% ethyl alcohol and 30% water. This was claimed to be non-irritating and to provide up to 6 hours effective repellency against culicine mosquitoes.

New Insecticides for Indirect Military and Civilian Use

HE most interesting new insecticide developed by the German chemists during the war was a substitute for nicotine preparations. The unrefined hexaethyl ester of tetraphosphoric acid was used for this purpose. This was compounded with an emulsifying agent to form a concentrate called "Bladan" which is readily dispersable in water to give an insecticide spray. The formula used consisted of 70% of the phosphoric ester, 30% emulsifying agent, Ho 2406 (polyhydroxyethylated isooctylphenol type). It was claimed that this material had been developed considerably prior to the war but the competition from nicotine had prevented its sale.

"Bladan" is used at a dilution of 0.5% active ingredients against aphids, for which insects it is said to be very effective. The active ingredient is unstable in water emulsions so must be made up immediately before use or at least on the day to be used. The ester is also very toxic and must be handled in bulk with care. It has little effect against insects other than aphids and plant lice.

The active ingredient is made by continuously reacting phosphorous oxychloride and triethylphosphate together under carefully controlled conditions so that the reaction proceeds for 1.5 hours at 140-145 °C. The reaction product cannot be distilled, so is drawn off the bottom of the kettle continuously as a crude residue.

The other insecticides reported are the subjects of several German patents issued since 1939. These are mostly for use against agricultural pests and will be described later. However, one of these insecticides, "Dizan" a dusting powder for combating cockroaches, may be of interest here. The composition of "Dizan" is 2.5%

phenyldiazopiperidine in talc. The active ingredient is prepared by diazotizing aniline and combining it with piperidine.

This compound is claimed to be non-poisonous to warm-blooded animals and is a substitute for the arsenic-fluoride compounds now used for combating roaches. The action is that of a stomach poison and somewhat similar to that of DDT. Three days are required to effect the kill.

(To be Continued)

RESIDUAL TOXICITY OF DDT

(From Page 149)

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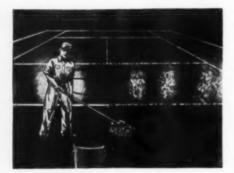
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for general cleaning, for metal and textile cleaning. Will replace T. S. P. to advantage in compounds.

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for driveways, runways, garage and factory floors, grease pits, etc.

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CONCENTRATED SOAP POWDER

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TRADE NEWS...

PCOs Honor Wm. Buettner

William O. Buettner was guest of honor at a testimonial dinner tendered to him by the New York Pest



WILLIAM O. BUETTNER

Control Association the evening of December 3 at the Hotel New Yorker, New York. Herbert Meyer served as chairman of the dinner committe. Mr. Buettnet was one of the organizers of the National Pest Control Association, and has served in a number of official capacities on both the local and national groups since their formation. For the past two years he has represented the pest control industry as its Washington spokesman in the Office of Civil Requirements.

Huffman Joins Cont. Car-Na-Var

R. S. Huffman, formerly chief chemist for Sherwin-Williams Co., has just joined Continental Car-Na-Var Corp., Brazil, Ind., in the same capacity.

Col. Heller Out of Army

Colonel Preston Heller of the Chemical Warfare Service of the U. S. Army has returned to inactive status and is again associated with B. Heller & Co., Chicago, manufacturers of chemical, drug and insecticide specialties, of which company he is president. Col. Heller has been on active duty with the Army for the past four

years, two of which were spent in the African and European theaters. He is a former member of the Board of Governors of the National Association



COL. PRESTON HELLER

of Insecticide & Disinfectant Manufacturers and was for many years active in the Chemical Warfare reserve.

Bri-Test Moves to Newark

Bri-Test Products Corporation, manufacturer of soaps, shampoos, waxes, polishes, and cleaners, started to move its manufacturing facilities on December 1 to the postwar home that has been on its drafting board since 1942, according to Louis Gould, president. Production of several "Bri-Test" products has already begun at the new plant at 109 Avenue L, Newark, N. J., Mr. Gould disclosed, and the remainder are being transferred under a simultaneous operating plan which will not interfere with output. As fast as one

Powell Completes Move

John Powell & Co., New York, have now completed moving their offices from 114 East 32nd St. to the new location at One Park Ave. Since the first of the year part of the Powell offices have remained at the old address, while the accounting and executive offices have been at One Park Ave. The laboratory will remain at the East 32nd St. location and will be further enlarged in the space vacated by the offices.

Greg Chem. In New Plant

Greg Chemical Co., Green Bay, Wis., were expecting to occupy their newly constructed plant at 1510 Willow St., during December.

NSSA Raw Material Exchange

National Sanitary Supply Association, Chicago, has established a "White Elephant dept." to assist members in disposing of merchandise that is not moving in their territory but which might be in demand in some other member's trade area.

product is discontinued at the Bronx plant at 800-814 E. 136th Street, production will be started at the Newark location.

The new Bri-Test plant, thoroughly modern in every respect, is built upon three acres of ground. It now contains 65,000 square feet of operating space to which are being added 10,000 more for a compounding room, Mr. Gould said. All 75,000 square feet, will house the best, up-to-the-minute equipment and facilities for the manufacture and packaging of "Bri-Test" products.



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Velvet action valve—New reinforced rib globe.

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Gravity tank system valves ready soon, order promptly. Supplies are limited.

Also a complete line of potash soaps, disinfectant cleansers, etc.

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Associated Chemists to Build

Arthur Srebren, president of Associated Chemists, Chicago, manufacturers of insecticidal materials, announces the purchase of a 17 acre tract at Richmond, Ill., where a factory will be built next year. The new plant, which will house the firm's main office, laboratory and plant, will be a 1½ story concrete structure containing about 50,000 square feet of floor space. The site adjoins a railroad. John Sexton & Associates, Chicago, are the architects.

DDT Fact and Fiction

"Fact and Fiction about DDT" is the title of a new booklet just issued by the Ampion Corp., Long Island City, N. Y., and compiled by Leonard Schwarcz, president of that company. The booklet covers in question and answer form the numerous facts about DDT, — what concentrations should be used and for what purposes, the types of DDT sprays, killing and residual, DDT powder products, percentages and properties, and other data commonly requested on DDT products.

Continental Can Buys Cap Plant

York, through its subsidiary, Bond and Cork Co. of Wilmington, Del., has acquired the facilities of Bamberger-Kraus & Co., Pittsburgh, manufacturers of crown caps, Continental announced in October.

G. W. Breuer Has Discharge

G. William Breuer, son of the late Adam A. Breuer and head of the Breuer Electric Mfg. Co., Chicago, electric sprayer manufacturers, has received his honorable discharge from the Army and has resumed his work at the Breuer plant. Mr. Breuer was a Major in the Engineering Corp at the time of his discharge.

Janitor Supply House in Waco

David E. Williams has organized Williams Chemical Co. with head-quarters at 410 Franklin Ave., Waco, Texas. The firm will deal in janitor supplies and equipment, and will serve the city of Waco as well as the surrounding area in central Texas.



Penick Buy Research Laboratory

S. B. Penick & Company, New York, botanical drugs and fine chemicals, announce the purchase of a research laboratory, erected by the Port of New York Authority some years ago. The Penick Company has immediately occupied the property, centering all of its research laboratory work in this new location under the direction of Dr. W. G. Bywater, general research director.

The property occupies a plot 100 by 150 feet on West Side Avenue and Fox Street, Jersey City. The building is of steel and concrete construction, three floors, and designed for laboratory research work exclusively. The company plans to broaden in a substantial manner the scope of its present research activities in this new location.

Barrett Rejoins McCormick

J. Clark Barrett, a salesman for McCormick & Co., Baltimore, in the Cincinnati territory prior to his enlistment in the Navy in November, 1940, returned to McCormick last month as assistant sales manager. Lt. Barrett won the DFC and the Air Medal for action in the Pacific as a Navy pilot. Another McCormick veteran, Lt. Col. Alfred W. Ireland will shortly return to active duty and will also serve as assistant sales manager, sharing equal

duties and responsibilities with Mr. Barrett. Colonel Ireland, as a paratrooper Captain, led the first detachment of troops to land on Sicily. He was a McCormick salesman prior to entering service. Both men will work under Walter M. Davis, general sales manager of McCormick & Co.

George L. Ball Dies

George Loyal Ball, of Cleanola Co. and Ball Chemical Co., Pittsburgh, died recently at this home in Zelienople, Pa. A member of the American Society for Testing Materials, the Masons and other organizations, he was a past director of the American Hereford Breeders' Association. Surviving Mr. Ball are his widow, five children, eight grandchildren, two sisters and two brothers.

Chase Joins D. W. Hutchinson & Co.

Irving Edgar Chase has been named a member of the executive staff of D. W. Hutchinson & Co., Inc., essential oils, New York. Mr. Chase was formerly Director of Sales for the William D. Neuberg Co., New York, and previously Ass't. Export Mgr. of Magnus, Mabee & Reynard, Inc., New York. For a number of years he was engaged in export-import work with W. R. Grace & Company, both in New York and California.

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San Francisco-E. M. Walls Danbury, Conn.—J. E. Pike Canada—Harrisons & Crosfield, Ltd. Montreal, Toronto and Vancouver

Reinhart Joins Wm. Neuberg

W. B. Reinhart, formerly chief of the tar acid unit of the Chemical Bureau of the War Production Board



W. B. REINHART

in Washington, has just joined the staff of William D. Neuberg Co., New York. He will serve as manager of the coal tar chemicals department of the Neuberg company. Before joining WPB in May, 1942, Mr. Reinhart was connected for many years with Reilly Tar & Chemical Corp., Indianapolis, Ind.

1080-New Rodenticide

An article by Clarence Cottam and Herbert S. Zim in the November 10, 1945 issue of the Saturday Evening Post tells the story of the development of the new rodenticide, formula 1080 -by the U. S. Fish and Wildlife Service. Chemically the new product is said to consist of sodium fluoroacetate. It is extremely toxic to rodents in even very dilute solution and its odor is said to be an attractant for them, rats taking the poisoned baits without hesitation. Because of toxicity hazards, the Fish and Wildlife Service contemplates that its use will be restricted to situations where it can be prepared and set out under the supervision of government officials trained in its use. General commercial sale is not planned.

Mickelson Joins Midwest Research

Dr. Milo N. Mickelson has joined the staff of the Midwest Research Institute, Kansas City, Missouri. He was formerly associated as professor of bacteriology and biochemistry at the University of Michigan. His work will be in the field of cell metabolism and microbial fermentation. He served previously in the research departments of a number of industrial organizations.

Entomologists Meet Dec. 3-4

The American Association of Economic Entomologists were scheduled to meet in Dallas, Texas. December 3 and 4.

Penick Representative Dies

Thomas Sparks, sales representative for S. B. Penick & Co., New York, died November 9th at his home in Wynnewood, Pa. Mr. Sparks joined the Penick firm in 1934 as sales representative for Philadelphia, Baltimore and Washington. Prior to his connection with Penick, Mr. Sparks had for about twenty years been connected with McIlvaine Brothers of Philadelphia.

Warn On Promiscuous DDT Use

The Food and Drug Administration has issued a warning against promiscuous use of DDT. It is cautioning producers and handlers of food crops that DDT should not be used unless there is no other insecticide of less toxicity available. Charges of adulteration of food are threatened against those who use DDT unnecessarily. There is grave question, the FDA says, "concerning the propriety of the use of DDT on such crops as leafy vegetables, since safer insecticides such as the pyrethrins and rotenone are available."

Carnauba Prices Double

Immediate effect of the revocation by the OPA last month of its price controls on carnauba and other vegetable waxes has been a skyrocketing market. Price quotations of \$1.75 per lb. on No. 1 yellow, and \$1.25 per lb. on North Country No. 3, have been reported in the New York market. These prices are approximately double the former OPA ceilings.

Sgt. Maj. Landes Joins Prentiss

Sgt. Maj. Karl H. Landes, discharged from the paratroops on points in July of this year, has joined R. J.



KARL H. LANDES

Prentiss & Co., New York, where he will handle aromatic drugs and spices as manager of that department. Mr. Landes holds a degree of Doctor of Botanical and Pharmaceutical Chemistry from Leipzig University (1927), and has had 18 years of experience in the botanical drug industry. Commissioned as a 1st Lt. in the Chemical Warfare Service, Landes resigned his commission to join the parachutists. A member of the 503rd parachute regiment, the first formed in the United States, he saw action in several major campaigns in Africa, Asia, Pacific and the Philippines. He holds the purple heart with two clusters, bronze and silver stars, seven commendations and has been recommended for the Legion

Velsicol Cleveland Office

Velsicol Corp., Chicago, have just opened east central headquarters at 1900 Euclid Avenue, Cleveland, and A. C. Conor will have charge of sale of resins, insecticides and aromatic solvents in this territory. Mr. Conor served for three years as Ensign with the U. S. Maritime Service and saw action in all three theaters of operation: European, Middle East, and Pacific. Prior to the war, we had been associated with Standard Ultramarine Corp., Huntington, W. Va.



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Write for Information and Quotations Top Quality and Performance

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CATIONIC - QUATERNARY AMMONIUM SALTS ALKYL DIMETHYL BENZYL AMMONIUM CHLORIDE

(Alkyl Group corresponds to Cocoanut Oil) supplied as solution in water.

CETYL TRIMETHYL AMMONIUM BROMIDE

supplied as 25% solution in water.

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supplied as 25% solution in water.

"ETHYL CETAB"* DRY QUATERNARY "OCTAB"* DRY QUATERNARY SALT "OCTIMET" * DRY QUATERNARY SALT

Useful as Germicidal and Bactericidal Agents, Emulsifiers, Wetting Agents. Sanitizing in Industry, eggs, fisheries, canneries, disinfectants, dairies, Dishwashing and glassware cleansing. Air conditioning, water treatment.

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Cetyl Alcohol Available in the finest grade, packed in 50 or 100 pound containers

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Se .

Canada Issues DDT Rules

The Canadian Pesticides Administration has recently adopted a set of regulations governing use of DDT insecticides in the Dominion. It is provided that an insecticide must contain a minimum content of 1/2 of 1 per cent of DDT, in association with other insecticidal active substances, to permit claims or guarantees to be made for it. For use in a surface (residual) spray, the minimum permissible content is 5 per cent. Dusts must contain at least 10 per cent DDT. In each case it is provided that the percentage content of DDT should constitute a part of the brand name.

Spray manufacturers are instructed that when DDT is used in an area spray, it should be used in combination with other active substances and the content of DDT should not exceed ½ of 1 per cent. DDT is prohibited for use in oil base livestock sprays. Products containing DDT in the required content of ½ of 1 per cent will be considered sufficiently toxic to be considered a poison.

New DuPont Fungicide

A new fungicide, "Zerlate," for use in the control of numerous plant diseases has just been announced by E. I. du Pont de Nemours & Co., Wilmington. It is based on zinc dimethyldithiocarbamate, and is a companion product to "Fermate," a slightly older fungicide based on ferric dimethyldithiocarbamate. "Zerlate" is said to be compatible with commonly used insecticides such as arsenicals, nicotine sulfate, cryolite, rotenone, pyrethrum and DDT.

Anderson-Prichard Conference

A general sales and laboratory conference was held by Anderson-Prichard Oil Corp., at Chicago, recently, with division and department heads, sales engineers, technical representatives and distributors in attendance. The meeting was conducted by C. H. Dresser, sales director of industrial products, and featured a series of talks by guest speakers. Dr. V. Froelicher, technical director of Geigy Co., New York, spoke on the chemistry and application of DDT. Dr. C. C. Comp-

ton, entomologist for Velsicol Corp., Chicago, reviewed DDT formulations with "Velsicol" solvents and toxicants. S. O. Hall and G. G. Garlick of Protection Products Mfg. Co., Kalamazoo, Mich., spoke on wood preservatives and their application. Approximately sixty were in attendance.

New Pest Control Magazine

A new monthly magazine "Pest Control and Sanitation" has been announced for early publication. Articles will deal with common pest control problems faced by the householder. The address of the new publication is 1633 N. La Brea Ave., Hollywood 28, Calif.

Gaudin Herbert Chem. V.P.

E. L. Gaudin, formerly Cincinnati representative of Mathieson Alkali Works, New York, has just been named vice-president of Herbert Chemical Co., St. Bernard, Ohio.

Offer New Soapless Cleaner

K. P. Chemical Co., 16 West 46th St., New York, is introducing a new all-purpose soapless cleaner which will be sold under the name "K.P." It is in powdered form, packed either in 50 lb. cartons or 350 lb. drums.

Report Over 200 DDT Licenses

Geigy Co., Inc., New York, holder of the patents on insecticidal compositions containing DDT, reports that upwards of two hundred licenses to operate under these patents have been taken out by American insecticide manufacturers. DDT itself can be manufactured free of patent restrictions, but compositions containing DDT are covered by the Geigy patents.

Haag Laboratories Move

The Haag Laboratories, Chicago manufacturers of liquid soaps, shampoos, and sanitary chemicals have moved their factory, laboratory and offices to Blue Island, Illinois, a suburb of Chicago. The new plant was purchased some time ago and upon completion of repairs and alterations early last month plant equipment from the old factory was installed. According to V. W. Haag, Sr., company president, the new location will not only give them larger production facilities immediately, but also additional ground is available for further expansion as needed. The plant is located on the Indiana Harbor Belt Railroad so that raw materials and finished products can be handled in carload quan-

Basis for Pyrethrum Extract Report Denied By Kenya Farmers Assn.

ROM the Kenya Farmers' Association (Cooperative) Ltd., Nakuru, Kenya, British East Africa, as agents for the Kenya Pyrethrum Board, a cable of protest and denial has been received regarding a report published in September, 1945, issue of Soap & Sanitary Chemicals (Page 147) which stated that "plans to produce and ship pyrethrum extracts from Kenya instead of baled flowers were further along than suspected." This was the published opinion of some American pyrethrum processors which predicted that such a development might force American processors to turn back to Japan for flowers or to underwrite cultivation in Mexico or South America.

The Kenya Farmers' Association stated that they desire to correct any such erroneous belief, that · there is no intention on the part of the Kenya Pyrethrum Board to discontinue shipment of baled flowers to American processors, and that any investigations up to the present regarding the erection of pyrethrum extract factories in Kenya pertain only to world markets and not to the American market. They have cabled this information for publication to correct any wrong impressions which may have been formed in the minds of American users of Kenya pyrethrum by publication of the article.

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Unusually High in Tar Acids
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SILICA SOFT AMORPHOUS

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A double ground material. Meets all requirements for quality and economy. Also airfloat grade in the same colors.

MULTI-CEL Diatomaceous Earth

Diatomaceous Earth Gives mild abrasive to polish. Best grade! Finest grind! Best for silver polish. A milder abrasive than silica. BENTONITE (Suspension Medium)

Colloidal clay. Very finely ground. Absorbs 5 times its weight in water. Holds ingredients in suspension.

TAMMS SILICA CO., 228 N. LaSalle St., Chicago 1, Ill.

Aerosols on Sale in Chicago

Aerosols for household use have made their advent in Chicago's department stores. Goldblatt Bros. claimed a "scoop" in being the first to offer an "Insect-O-Blitz" bomb. Marshall Field & Co., followed with announcement of an aerosol dispenser, made by Bridgeport Brass Co., Bridgeport, Conn. Field's advertised price was \$3.95 and a new container was offered at \$2 in exchange for an empty. Goldblatt's price was \$2.59.

Dr. C. L. Smith Joins AIFA

Dr. Charles L. Smith has recently been named technical adviser to the Agricultural Insecticide & Fungicide Association. He succeeds Dr. Robert E. Wean, who recently joined Geigy Co., New York. Dr. Smith is a graduate of Rutgers University where he majored in entomology. Following receipt of his Ph.D. in 1937, he did research work at Rutgers on nicotine, rotenone and pyrethrum insecticides, under industry-sponsored fellowships, and later held positions with McCormick & Co., Interstate Chemical Mfg. Co. and Doggett & Pfeil Co. More recently he has been continuing his research work at Rutgers under a fellowship from Carbide & Carbon Chemicals Corp., New York.

Dow Equips Fumigation Trailer

Dow Chemical Co. has placed in service a unique fumigation trailer designed to handle special fumigation problems, such as extermination of rodents in cold storage plants, fumigation of food processing plants and machinery, also ship and barge fumigation. The equipment is kept loaded and ready for instant action and will be used by the company's fumigation division's field service, in conjunction with established industrial fumigators.

Snell Engineering Services

Foster D. Snell, Inc., consulting chemists and engineers, Brooklyn, have issued a new bulletin describing the engineering services offered by the firm.



PAUL EISENHUTH

Velsicol Adds 3 to Sales Staff

Velsicol Corp., Chicago, manufacturers of insecticides, synthetic resins, aromatic solvents, core oils, and other petroleum derivatives, recently has augmented its sales staff with three new members, two of whom, Paul Eisenhuth, and J. Newton Hall, formerly held executive positions with the War Production Board. The third new member is Arthur H. Carnes, who for the past twenty years has been division sales manager with the Stanco Distributing Company, subsidiary of Standard Oil Company of New Jersey. Mr. Carnes has become mid-west district manager for the sale of all Velsicol products. Mr. Eisenhuth will be in charge of sales of Velsicol's aromatic solvents. Mr. Hall will be eastern sales manager for all Velsicol products.



J. NEWTON HALL



ARTHUR H. CARNES

Velsicol has opened a New York office in the Park-Murray Building, 9-11 Park Place, New York City 7.

Oil-Soluble DDT Concentrate

An oil-soluble DDT concentrate which contains twenty-five per cent DDT in a new solvent mixture is now being manufactured by Hercules Powder Co., Wilmington. This concentrate is designed for the economical formulation of residual-type DDT sprays, either alone or in combination with small proportions of other toxicants which contribute quick knockdown and kill characteristics. It is available only to insecticide manufacturers. With this oil-soluble DDT concentrate, Hercules now has available seven different types of toxicants, suitable for the formulation of all kinds of sprays and dusts.

Offers Two New Waxes

International Wax Refining Co., Brooklyn, has just announced availability of two new waxes—"Intawax Yellow" for shoe and leather polishes, paste waxes, waterproofing compounds, etc., and "Interwax Amber" for rubless polishes, water emulsion products, etc

Geigy Booklet on Toxicity

Geigy Co., New York, is distributing a booklet entitled: "The Constitution and Toxic Effects of Botanicals and New Synthetic Insecticides," which is a translation of a paper by P. Lauger, read at Basle, Switzerland, last year, the company announced last month.

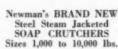
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Chemical Engineer: Capable of organizing and carrying out research and production of soaps and detergents. Fifteen years of experience in the Research Development and production management in soap, oils, fats, and detergents. Thorough knowledge of hydrogenation of organic compounds, including catalyst manufacture; considerable experience in bleaching and splitting of fats and oils, and continuous saponification of fatty acids; eight years of research and operation of drying processes-consisting of spray tower and drum drying of soap and synthetic detergents. Salary \$7200. Address Box No. 270, care of Soap & Sanitary Chemicals.

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Sales Representative with New York Office: Interested in reputable merchandise from reputable manufacturer for selling to jobbers, chain and department stores. Commission arrangement. Our services include: Product and packaging development, Research and market development, Public relations and publicity. Address Box No. 283, care of Soap & Sanitary Chemicals.

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Miscellaneous

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Miscellaneous

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|---|--|---|
| *Baird & McGuire, Inc 104, 129, 132 J. T. Baker Chem. Co 103 *Barrett Co 172 *Bobrick Mfg. Co 121 Bonnot Co Nov. *Breuer Electric Mfg. Co 196 *Eri-Test Products Corp 164 Buckingham Wax Co 188 Bush Aromatics 80 | Hospital Management 32 | Regal Chemical Corp. .96, 97 *Reilly Tar & Chemical Co. .182 Rheem Mfg. Co. .Nov. Rhodes Chemical Corp. .188 W. C. Ritchie & Co. .60 Roberts Mfg. Co. .195 *Rohm & Haas Co. .142, 150 A. H. Ross Co. .64 Rumford Chemical Works .6 |
| Can Manufacturers Institute. Nov. R. E. Chapin Mfg. Wks. 198 Chemical Industries, Exposition of 82 Chemical Mfg. & Dist. Co. 10 Chemical Supply Co. 178 John A. Chew, Inc. Nov. Antoine Chiris Co. Oct. Clifton Chemical Co. 123 Cole Laboratories 177 Compagnie Parento 84 *Conzolidated Products Co. 194 *Continental Can Co. 166 Continental Can Co. 166 Continental Can Co. 154 Cowles Detergent Co. 84 Crosby Naval Stores 198 *Crown Can Co. 56 | *Innis, Speiden & Co. 181 Institutions Magazine 22 International Wax Refining Co. 140 Interstate Color Co. Nov. James Laboratories 193 R. A. Jones & Co. 34 Ken-Ya-Pye 126 Karl Kiefer Machine Co. 68 Koppers Co. 110 Kranich Soap Co. 18 H. Krevit & Co. 173 *Lancaster, Allwine & Rommel 193, 196 Alan Porter Lee. 195 *J. M. Lehmann Co. 76 C. W. Lenth 195 Lowell Mfg. Co. 173 *Geo. Lueders & Co. 58 | Salkover Metal Processing 131 Sanders-Eavenson Chemical Co. 184 Sanitary Soap Co. 101 *C. G. Sargent's Sons Corp. Nov. *Schimmel & Co. Nov. *F. E. Schundler & Co., Inc. Nov. Seeley & Co. 194 Seil, Putt & Rusby 193 Sharples Chemicals, Inc. 102 Shell Oil Co. 114 Henry Simon, Ltd. 83 *Skinner & Sherman 193 *Skotch Products Corp. 196 *Foster D. Snell 193 *Solvay Sales Corp. 8, 105 L. Sonneborn Sons, Inc. 122 Sparhawk Co. 78 Standard Alcohol Co. 187 Stillwell & Gladding. 193 *Stokes & Smith Co. 80 |
| *Derris, Inc | MacKenzie Laboratories 179 *Magnus, Mabee & Reynard, Inc. 124 *N. I. Malmstrom & Co. 19 *M. & H. Laboratories 176 Mantrose Corp. 186 C. C. McDonnell 193 *McLaughlin Gormley King Co. 94, 95 Miranol Chemical Co. 175 | Tamms Silica Co. 190 Tesco Chemical Co. 146 E. G. Thomssen. 195 *Tombarel Products Corp. 29 Triangle Package Machinery Co. 78 Jos. Turner & Co. 48 |
| *Eastern Industries Nov. Elkay Products Co. 194 Emery Industries 20 Emfo Corp. 193 Emulsol Corp. Nov. Essential Chemicals Co. Nov. | Mirvale Chem. Co | Ultra Chemical Works |
| Federal Tool Corp. Nov. *Federal Varnish Co. 170, 174 *Felton Chemical Co. 9,88 Filtrol Corporation 27 *Firmenich & Co. 4th Cover *Florasynth Laboratories 15 Franklin Research Co. 156 Fritzsche Brothers, Inc. 52 *Fuld Brothers 3 Fumeral Co. 170 Gardner-Richardson Co. 89 *Geigy Co. 111 | Wm. D. Neuberg Co | *Van Ameringen-Haebler, Inc. Front Cover, 152 *Velsicol Corp |



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DDT is only one glaring example of the manner in which the great American weakness,—craving for publicity,—can warp and distort a sense of true values. Press agents and publicity hounds have become a national curse!

Recently, Westbrook Pegler in his column commented to the effect that Americans go overboard easily for sucker bait. Pegler was not discussing DDT publicity at the time, but he might well have been.

Something like one hundred thousand reprints of the editorial in October Soap & Sanitary Chemicals criticizing the "five per cent DDT fallacy" promulgated by the U. S. Public Health Service were made and distributed to dealers and industrial insecticide users by a half-dozen insecticide manufacturers.

What is the Army going to do with its surplus soap,—and when?

Sign of the times:—Purchasing agents report that salesmen are beginning again now and then to use the old tried-and-true expression, "Yes, Sir!"

"Please send us the names of several soap makers who can supply us with wrapped toilet soap which we require immediately to add to our line." We sent the author of this inquiry the names of Santa Claus, Houdini and Martin Schultes.

